BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

# Major PHENIX Detector Subsystem Ready for Installation

Installation of the largest component of the PHENIX experiment — one of two major experiments being built to search for quark-gluon plasma at the Relativistic Heavy Ion Collider (RHIC) — is scheduled to begin on July 21.

Beginning next Tuesday, the eight sectors making up the subsystem called the electromagnetic (EM) calorimeter, the largest of a dozen components making up PHENIX, will be installed within the 8 o'clock PHENIX experimental hall at the RHIC ring.

When moved into place, the entire PHENIX detector will surround one of six intersection points, where beams of heavy ions traveling at nearly the speed of light and circulating in opposite directions around the RHIC ring will collide. Out of the thousands of particle collisions happening each second, PHENIX and the other detectors around the RHIC ring will be looking for evidence of quark-gluon plasma, a particle state that last existed one microsecond after the Big Bang.

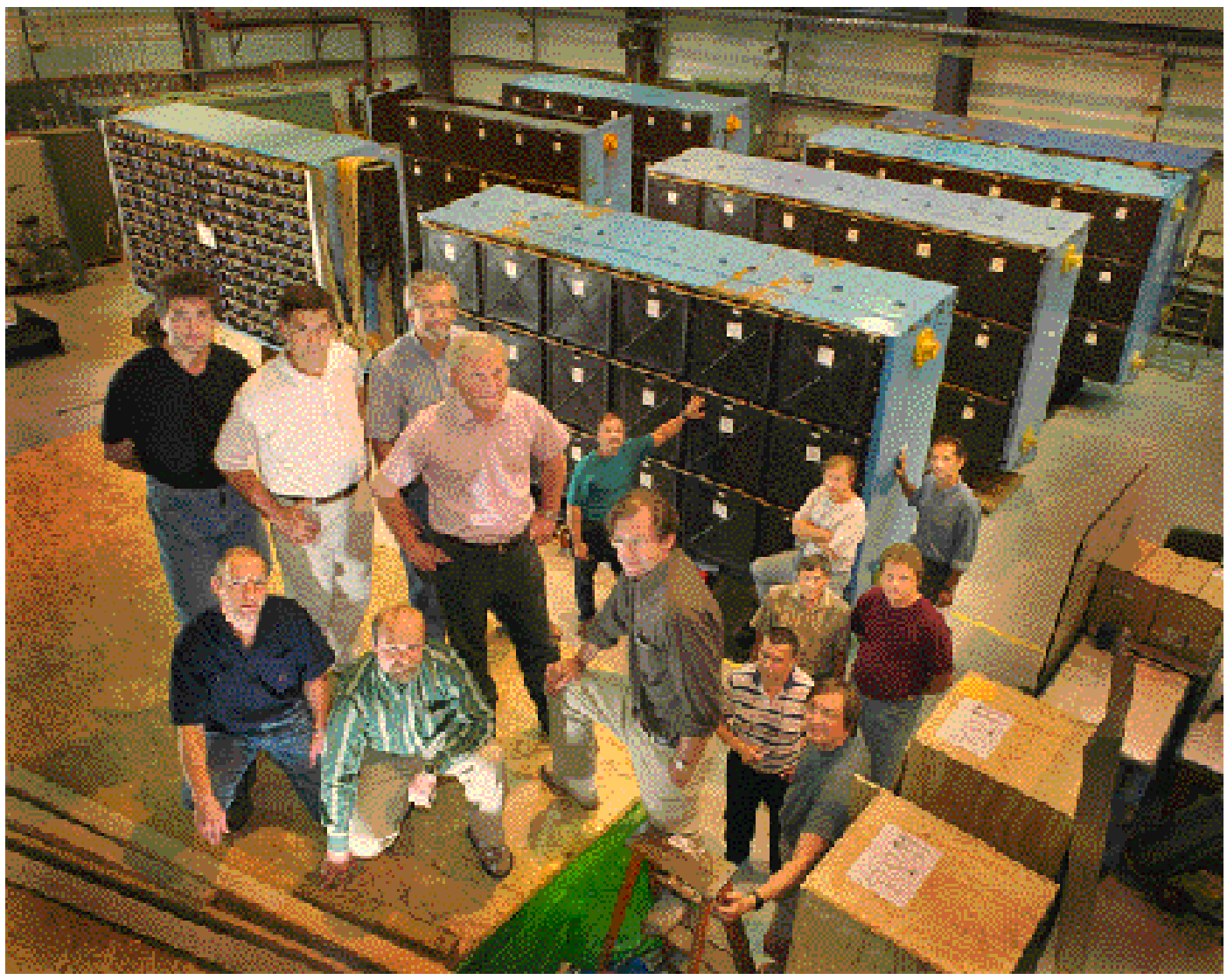
This research is to begin in 1999, when construction of the RHIC collider and its associated experiments is to be completed.

Meanwhile, milestones in the construction of RHIC detectors are being marked, and, since a journey is made by taking many steps, the completion and readiness for installation of the PHENIX EM calorimeter is significant. Installation of the EM calorimeter will be completed within three to four months.

**Absorb & Convert Energy**

As the latest device for counting calories, PHENIX's EM calorimeter will absorb and convert the energy of the particles emerging from RHIC's collisions of heavy ions. Specifically, this

(continued on page 3)



**Standing before seven of the eight sectors making up the electromagnetic calorimeter of the PHENIX experiment at RHIC are some of those who made its completion possible: (First row, kneeling, from left) Alexander Bazilevsky, Institute of High-Energy Physics (IHEP), Protvino, Russia; EM calorimeter chief engineer Alexander Soldatov, IHEP; (first row, standing on latter) EM calorimeter group leader Sebastian White, BNL; (second row, standing) Igor Shein, IHEP; lead-scintillator coordinating physicist Edouard Kistenev, BNL; Alexander Vinogradov, Kurchatov Institute, Moscow, Russia; IHEP Protvino group leader Vladimir Kochetkov; (background left) Sergei Chernichenko, IHEP; (background right, left row) Vitaly Semenov, IHEP; Vladimir Brovine, IHEP; Alexander Usachov, IHEP; (background right, right row) Igor Belvakove, IHEP; and Dragoslav Scepanovic, BNL. — Photos in this issue by Roger Stoutenburgh.**

## BNL, Suffolk County Together Launch Brown-Tide Buoys

BNL and Suffolk County have recently launched three sophisticated buoys built at the Lab to monitor the causes and effects of brown tide.

The buoys will be anchored in the Peconic Estuary for the rest of the summer, the latest in a series of cooperative brown-tide research efforts involving the County and the Lab.

Since 1985, the Peconic Bay and other Long Island and East Coast bays have periodically experienced the decimating effects of brown-tide algae blooms on shellfish harvests and water quality.

Suffolk County is currently pursuing an accelerated estuary plan for the Peconic Bay under the federal Environmental Protection Agency's National Estuary Program.

Department of Applied Science scientists have worked with county researchers to formulate theories for what causes brown tide and to study the brown tide organism, *Aureococcus anophagefferens.*

*(See photo essay on page 2.)*

## A 660-Carat Diamond: An AGS Physicist's Best Friend

As an investment in jewelry, a BNL-developed diamond that is 40 cubic centimeters big wouldn't be most girls' best friend: Even at 660 carats and 132 grams, the gray diamond definitely lacks sparkle.

As a target at the Alternating Gradient Synchrotron's (AGS) experiment E885, however, where researchers are using kaon particles as a probe for nuclear structure, this diamond's size, density and simple structure have made it a more-than-likable investment, yielding an event rate much faster than other forms of carbon.

E885, whose spokespersons are Morgan May, Physics Department, Gregg Franklin, Carnegie-Mellon University, and Charles Davis of the University of Manitoba, includes nearly 50 physicists from the universities of Freiburg, Kentucky, Kyoto, New Mexico, Rutgers, as well as from KEK, Japan, Los Alamos National

(continued on page 2)

**Placing the diamond target in the E885 experimental setup are: (from top) experiment spokespersons Morgan May and Gregg Franklin, team member David Alburger, and Bob Chrien, who leads BNL's Medium Energy Group. The 40 cubic centimeter, 660-carat diamond was fabricated by Alburger from commercially produced diamond wafers.**

**Designed and built by the Geophysical Instruments & Measurements Group of the Department of Applied Science (DAS), the buoys contain instruments to measure the temperature, salinity, oxygen and chlorophyll concentrations of the waters.**

# BNL, Suffolk County Launch Hi-Tech Buoys For Brown-Tide Monitoring Research

**The buoys will transmit data by radio to a tower repeater at Southampton, which will forward them to BNL, where they will be posted at www.oard.bnl.gov/peconic. The data will help scientists study the conditions that trigger brown tide, and perhaps find ways to prevent it. Here, Victor Cassella, DAS, is attending to the Southampton repeater station.**

**On June 3, the first buoy was deployed from the New York State Department of Environmental Conservation's (NYSDEC) Research Vessel (RV) *David H. Wallace.* At the podium on the dockside that morning was Suffolk County Executive Robert Gaffney with BNL Director John Marburger to his left. Behind them are: Vito Minei (second left, who is Suffolk County Director of the Brown Tide Research Initiative; NYSDEC RV Captain Ben Havens (far left) and (sixth left) Mate Christina Grahn; (third and fourth left) Michael Reynolds, who heads technical development for the BNL team and BNL Project Leader Creighton Wirick, together with (third right and far right) BNL team members Ray Edwards and Scott Smith.**

## AGS Diamond (cont'd.)

Laboratory, TRIUMF and others from BNL.

The experimenters' object is to get two quarks of the type called strange into a nucleus. As a first step, they are producing particles known as "cascade" or Xi hyperons, which, in addition to the neutrons and protons which usually make up nuclei, contain two strange quarks.

"A great many data are available on ordinary nuclei," commented May, "but we still don't fully understand the strong force that holds the neutrons and protons together. By using strange quarks in the nucleus as a probe, we hope to get a new angle on the origin and nature of the nuclear force. Also, finding hypernuclei containing two strange quarks may show whether proposed exotic particles such as the H particle or strangelets exist."

**Biggest Diamond, Best K Beam**

In the experiment, a beam of kaon particles, which each contain a strange quark, strikes the diamond target. Among the events that can result are the cascade particles containing two strange quarks. The experiment is well suited to the AGS, which produces the world's most intense kaon beam.

Cascades are very short-lived, and the goal is to catch them on another nucleus in the target in which they originate. That requires a very dense material to have the best chance for the cascade to bind with another nucleus before decaying. Carbon was chosen for its density and simple nuclear structure.

After carbon targets in the form of plastic and graphite were tried out, it was found that a diamond target, at 3.51 grams per cubic centimeter, the densest form of carbon, would work best.

"My mission was to come up with a diamond 1 centimeter thick and 5 by 8 centimeters in area," said team member David Alburger, a Physics guest scientist since his 1990 retirement. "I tried all sorts of schemes using diamond powders, flakes and naturally occurring Congo cubes, but they were unsatisfactory."

The solution was found in commercially produced diamond wafers. With $15,000 from Kenichi Imai of Kyoto University, Japan, Alburger bought 502 flat wafers laser-cut into 1-centimeter (cm) squares, with thicknesses of 0.3 to 1.5 millimeters (mm).

Then, using four inches of broom handle drilled to hold three inches of lead pencil with the wafer gripped by the 2-mm cutoff eraser at the end, Alburger devised a hand tool to smooth the wafers' rough side against a flat diamond grinding disc.

After he had stacked and bound the smoothed wafers with epoxy into 1-cm cubes, he bound them all them together to make what may be the biggest man-made diamond ever, with an effective density of about 94 percent of a solid diamond.

**Sparkling Sequel**

The high event-rate from the diamond target had a sequel: Another such target was requested by KEK Laboratory, Japan, for a hypernuclear experiment being run there by Imai. Employing the same technique, Alburger made the new target, this time in a set of three blocks to allow variable thickness. The target is already in use at KEK.

Back at the AGS, E885 data-taking and analysis are now complete and results will be announced shortly.

— Liz Seubert

## Attn. BNL's Foreign-Bound Travelers: Go to the Clinic One Month Before Trip

BNL employees who travel to foreign countries on Laboratory business should be aware that the Occupational Medicine Clinic (OMC), Bldg. 490, provides travel-medicine services free of charge.

These services include providing: appropriate immunizations given your destination; advice based on guidelines issued by the Centers for Disease Control & Prevention on how to avoid illness while traveling and staying in that country; and a travel kit containing supplies which can be used to treat minor illnesses. For instance, staff traveling to Russia are made aware of the increased risk of incurring several infectious diseases and the appropriate prevention techniques.

Therefore, before you head to another country on your next business trip, head to the OMC at least one month before your trip starts, so as to ensure that all of the immunizations that you may require have the necessary time to become maximally effective.

For more information, call the Clinic, Ext. 360 or 3671.

## *Tread Safely*

The Safety Shoe Office located in Bldg. T-88 will be closed from Tuesday, July 21, through Wednesday, July 29. The office will reopen on Thursday, July 30.

## Defensive Driving Course Scheduled for 8/22

A six-hour defensive driving course will be given on Saturday, August 22, from 9:30 a.m. to 3:30 p.m. in Room B, Berkner Hall.

The course is open to all BNL, BSA and DOE employees, BNL facility-users and their families, and costs $20 per person.

Approved by the National Safety Council, this course entitles those who complete it to a 10 percent discount on their auto collision and liability insurance for three years. Also, those who have incurred penalty points within the prior 18 months may have up to four points deducted from their license.

To register, call Scott Zambelli, 249-3000, ext. 5877.

## Attention Experts!

Recently, BNL's Media & Communications Office (M&CO) began subscribing to an e-mail service called Profnet, which allows journalists around the nation to request expert sources from institutions and public relations firms.

Each day, M&CO monitor the incoming requests listed in Profnet's frequent e-mails. If they find that a journalist's request matches the area of expertise of a BNLer, then the office will contact that employee to ask if he or she would like to be contacted by a reporter. If the answer is yes, then the connection is made via phone or e-mail.

Participating in this kind of expert-source service helps the Lab gain exposure in the national media and increases the public's awareness of the diversity of Brookhaven's research.

If you're an expert in a scientific, engineering or technical field, and you would like to be on call in case a reporter's request matches your expertise, then e-mail pubaf@bnl.gov. Of course, if you do not feel comfortable commenting on a particular story, then you may always decline a request.

## Service Awards

*The following employees celebrated service anniversaries during June:*

**35 Years**

**Barry S. Arbeit**.....CCD

**30 Years**

**Antoinette M. Fridae**.....App. Science
**Richard T. Imossi**.....AGS

**25 Years**

**Elinor Adams**.....Int. Audit Office
**Richard R. Froelich**.....Plant Eng.
**Joyce M. Moore-Harding**.....ES&H Serv.

**20 Years**

**Harold W. Avent**.....AGS
**Edward Baker**.....Physics
**Paul Blacher**.....Plant Eng.
**Ralph L. Brown**.....RHIC
**Patrick M. Calabrese**.....AGS
**Gary E. Connell**.....Plant Eng.
**Vanette M. DeJesus**.....Admin. Support
**Edmond J. Desmond**.....Physics
**Frank Flegar**.....Cent. Shops
**Louis C. Gerlach**.....Adv. Technology
**John H. Heiser**.....Adv. Technology
**Sharon M. Jones**.....Safeguards & Sec.
**Susan A. Kennell**.....AGS
**David V. Kipp**.....AGS
**Bruce E. Laakmann**.....Plant Eng.
**Robert G. Lynn**.....Cent. Shops
**Richard F. Pietrzak**.....Adv. Technology
**Jo Ann Reed**.....Contr. & Proc.
**Edward D. Sperry**.....RHIC
**William L. Stokes**.....RHIC
**Gary L. Stoner**.....Plant Eng.

**10 Years**

**John R. Brinker**.....RHIC.
**Brian C. Buckheit**.....Safeguards & Sec.
**Donna Jean Chiossone**.....Budget Off.
**Louis A. Figueroa**.....Safeguards & Sec.
**Lars R. Furenlid**.....NSLS
**Victoria L. Kircher**.....Plant Eng.
**Albert C. Langhorn**.....Plant Eng.
**Daniel Martin**.....AGS
**Terence G. Monahan**.....ES&H Serv.
**Richard H. Muller**.....Safeguards & Sec.
**John F. Passaro**.....Plant Eng.
**Doreena J. Victoria**.....Plant Eng.

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*Summer Sundays Continue Through August 31st*

## RHIC Is Featured in Mini-Tour This Sunday

**Inside the tunnel of BNL's Relativistic Heavy Ion Collider.**

The Relativistic Heavy Ion Collider (RHIC) is *the* place to visit this Sunday, July 19 — when it is the featured facility of the Summer Sunday tour program.

Soon to be the world's highest-energy collider of heavy ions and the place where scientists from around the world will recreate and study the conditions of the universe immediately after the Big Bang, RHIC is scheduled to begin operations in 1999. So now, while RHIC is still under construction, take this mini-tour for a once-in-a-lifetime opportunity to get an insider's look at this really big machine and some of its associated detectors.

In addition, as is offered every Sunday of this season's Summer Sundays, participate in the Whiz Bang Science Show. Fun for children of all ages, this show is a lively, interactive demonstration of basic scientific principles, and it is presented at 10:30 a.m., noon, 1:30 p.m. and 3 p.m. in Berkner Hall.

In addition to the mini-tour of RHIC and the Whiz Bang Science Show, Lab tourists will get a guided bus tour of the entire site.

Running Sundays through August 30th, Summer Sunday tour hours run from 10 a.m. to 3 p.m., but participants must arrive before 3 p.m. As well as being fascinating and fun, tours are free and open to the general public.

## President Clinton Nominates Ambassador Bill Richardson As Next Secretary of Energy

On Friday, June 19, President Clinton announced his intent to nominate Ambassador Bill Richardson as Secretary of the U.S. Department of Energy (DOE).

If confirmed, Richardson will take over the position left open by Frederick Peña, who, on April 6, announced his resignation effective June 30. The Secretary of Energy directs and supervises DOE's administration, decides major policy issues, acts as the principal energy advisor to the President and serves as DOE's principal spokesperson.

Currently the U.S. Ambassador to the United Nations (UN), Richardson is a member of the President's Cabinet and the National Security Council. He has twice been nominated for the Nobel Peace Prize for his work to free hostages and prisoners within Croatia, Burma, Cuba, Iraq, North Korea and Sudan, and to negotiate the peaceful transfer of power in the former Zaire, now the Democratic Republic of the Congo.

Prior to his work at the UN, Richardson had served for eight terms as a Congressman from New Mexico's third Congressional District. Serving as Chief Deputy Whip while in the House of Representatives, he had held one of the highest ranking posts in the House Democratic leadership.

As a member of the Commerce Committee, Richardson became familiar with DOE's national laboratory system, taking a leadership role involving Los Alamos National Laboratory and Sandia National Laboratory.

Richardson was a member of the House Resources Committee, the Permanent Select Committee on Intelligence, and the Helsinki Commission on Human Rights. He chaired the Congressional Hispanic Caucus.

Richardson received a B.A. from Tufts University and an M.A. from the Fletcher School of Law and Diplomacy. He has received numerous honorary degrees, honors and awards, such as Mexico's highest honor given to a noncitizen: the Aztec Golden Eagle award.

## Arrivals & Departures

**Arrivals**

**Thomas Camaro**.....RHIC
**Michael J. Coffey**.....Adv. Technology
**Robert L. Ellis**.....Plant Engineering

**Departures**

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

**Leeann A. Austin-Rooney**.....Biology
**Eric S. Seebeck**.....ES&H Services

## Equipment Demo

Techni Tool of Plymouth Meeting, Pennsylvania, will be holding an equipment demo on Wednesday, July 22, from 10 a.m. to 2:30 p.m. in Berkner Hall. On display will be tool kits, soldering stations, ESD control equipment, and test equipment, including scopes and meters.

## Nobel Prize-Winner, National Medal Holder To Speak to Students

**On Friday, July 24, as part of the Community Summer Science Program (CSSP) lectures organized by the Office of Educational Programs (OEP), Jerome Karle, who won the 1985 Nobel Prize in Chemistry, will talk about "Toxins" at 9:45 a.m. in the Hamilton Seminar Room in the Chemistry Department, Bldg. 555.**

**The talk will be followed immediately at 10:45 a.m. by a talk on "Ion Transport," to be given by Isabella Karle, who is the 1995 National Medal of Science Winner.**

**The Karles, parents of Louise Hanson, OEP, are both of the U.S. Naval Research Laboratory, Washington, DC.**

**The CSSP is a program for high-school students, and this is the fourth time that the Karles have come to BNL especially to encourage the Lab's CSSP pre-college students to pursue science or engineering as careers.**

## PHENIX (cont'd.)

calorimeter is designed to stop, measure the energy and mark the position and time of arrival of photons, electrons and positrons.

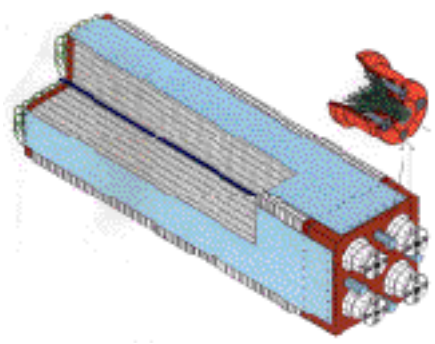
The energy spectrum derived from calorimeter data of these three particles, which are among other particles liberated in the RHIC collisions, is expected to be one of the signals of the formation of quark gluon plasma.

Work on the calorimeter began in the spring of 1993, and its design was born from the marriage of two technologies: an existing lead-glass technology borrowed from the CERN experiment known as WA98, and a novel lead-scintillator technology conceived at Brookhaven.

As a result, two of the PHENIX calorimeter's eight sectors are reassembled WA98 calorimeter modules, while the remaining six are the offspring of an unique partnership involving BNL, Russia's Institute of High-Energy Physics (IHEP) at Protvino, and two Russian firms: Polymersyntez and Melz.

Each of these six sectors is made up of 18 units called supermodules; each supermodule consists of 144 units called towers, which contain alternating squares of scintillating plastic and lead absorber (see graphic below). The towers are threaded with optical fibers, which transport light from each tower to its own photomultiplier tube. It converts the energy from the light into an electric pulse which is electronically recorded and analyzed by computer.

In total, the EM calorimeter contains 15,552 lead-scintillator towers within these six sectors, plus 9,216 towers within the two lead-glass sectors. — Marsha Belford



**Lead-scintillator tower module from PHENIX's electromagnetic calorimeter.**

## BWIS Summer Party

The 19th Annual Brookhaven Women in Science (BWIS) Summer Reception will be held on Tuesday, July 21, 5:15-7 p.m., in the inner courtyard of the Physics Building or in the adjacent lobby area if it should rain.

At 5:30 p.m., the Renate W. Chasman Scholarship Award will be presented to this year's winner, Roseanna Ryan of Stony Brook.

Editor-in-Chief Martin Blume of the American Physical Society, who is a senior physicist in BNL's Physics Department, will be the guest speaker at the presentation. He will discuss "Renate Chasman's Place at Brookhaven and in Science."

All employees and guests are invited to enjoy light refreshments, beverages and wine, and a donation for the wine would be appreciated.

For more information, call Venita Ghosh, Ext. 3527; Louise Hanson, Ext. 5849; or Lisa Tranquada, Ext. 7731.

## *Find Waldo by Today!*

If you think you have found Waldo in the historic BNL-50 photograph (see Bulletins of December 15, 1997, or June 19 or 26, 1998), then enter the "Where's Waldo?" contest by today, Friday, June 17.

To enter, circle where you think Waldo is in the crowd and submit your entry to the Bulletin, Bldg. 134. If you were in the photo too, then circle yourself as well.

The contest winner, to be selected at random from all the correct entries received by today, will win a free BNL-50 photograph T-shirt — two free shirts if the winner also identified him or herself in the picture.

These T-shirts are now on sale in the BERA store, Berkner Hall, Tuesday through Friday, 9 a.m. to 1:30 p.m.

## *Define BNL in a Slogan, Win $100 Prize*

Here's a test: Match each slogan with the organization that it represents:

| | |
|---|---|
| 1. Better living through chemistry. | a. SUNY Stony Brook |
| 2. Does she . . . or doesn't she? | b. Morton Salt |
| 3. Don't leave home without it. | c. RCA |
| 4. We try harder. | d. Clairol |
| 6. You're better off under the umbrella. | e. Avis |
| 7. World-class health care in your own backyard. | f. DuPont |
| 8. It just feels right. | g. American Express |
| 9. We bring good things to light. | h. General Electric |
| 10. His master's voice. | j. Mazda |

One of the characteristics of successful organizations, such as the ones listed above right, is that they have a distinctive motto or slogan which succinctly communicates their purpose and positions them positively in the public's mind. Each of the examples above left does just that.

To help better define BNL for those who work here and the general public, the Lab should have its own slogan — hence, this contest.

If you can think of a memorable phrase that captures the Lab's essence, then submit your idea for a BNL slogan to: Slogan Contest, Brookhaven Bulletin, Bldg. 134. Entries in the slogan contest will be accepted from BNL, BSA and DOE employees and retirees, and on-site contractors through August 14.

To entice you to brainstorm, the person submitting the winning entry will be awarded a $100 American Express gift check. Regardless of the quality of their entries, everyone who submits a slogan suggestion will be eligible for a drawing for a $50 dinner for two at the restaurant of their choice.

From among the submitted slogan suggestions, up to ten will be selected for evaluation, and, after withstanding management scrutiny and gaining public approval, one of those could emerge as BNL's slogan. The Lab's management, however, reserves the right not to adopt any of the finalists as BNL's official slogan, if none is appropriate in its and/or the public's mind.

So, put on your thinking caps and try to produce a catch phrase about the Lab that would make all BNLers and Madison Avenue proud!

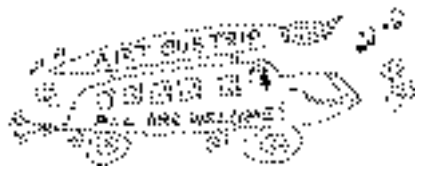
## Children Graduated? Change Your Coverage!

If you have had dependent children who have been graduated from high school or college and who are not continuing school full time, then this is a reminder to change your medical and dental coverage.

This may not only decrease the premium that you pay toward this coverage, but, if it is done within 30 days of their graduation, then it will also allow your child to purchase the benefits under continuation of benefits (COBRA) coverage.

To change your coverage, contact the Benefits Office in the Human Resources Division, Ext. 2877.

## *Midnight Madness: Bus Trip to Wyeth Art, Flamenco at Longwood*



By popular request, on Saturday, August 22, the Art Society is sponsoring an art-and-flowers bus trip, leaving the Lab's Brookhaven Center at 7 a.m., to visit Brandywine Valley Museum, an old riverside mill house just south of Philadelphia, which has a magnificent collection of Andy Wyeth paintings.

From there, the bus will continue on the 15 or so minutes' ride to Longwood Gardens, acres and acres of some of the most beautiful and varied horticultural wonders of the U.S.

As a finishing touch to the Longwood visit, a free mini-concert and exhibition of flamenco dancing will be held 7-7:45 p.m. — allowing the BNL bunch just enough time to rush to the bus by 8 p.m. and snooze back to the Lab before midnight strikes or the coach turns into a pumpkin.

Food can be as you like — there are cafe-restaurants at Brandywine and Longwood, or you can take your own picnic. A leg-stretching coffee stop will break the journey each way, but no castanets may be clicked either coming or going.

The price of the luxury-bus-with-bathroom, including driver's tip, is $27; Longwood Garden entrance is $10; Brandywine Museum is $4 or $2.50 for seniors. For more information or to reserve a place, call Liz Seubert, Ext. 2346 or 286-8563, or e-mail lseubert@bnl.gov.

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## Classified Advertisements

### Placement Notices

The Lab'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.

*The following vacancies are exempt from the Director's hiring freeze.*

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

MK7334. FACILITIES OFFICE ASSISTANT - Under minimum supervision, performs duties of a diversified nature. Prepares and maintains records, work orders and files according to prescribed procedures. Types correspondence and reports, handles incoming phone calls on work to be done, referring to supervisors as appropriate; in cases of emergency and in absence of supervisors, relies on broad knowledge of Plant Engineering operations to get proper resources on the job. Performs tabulations and computations, and other miscellaneous office functions. Plant Engineering Division.

**OPEN RECRUITMENT** - Opportunities for Laboratory employees and outside candidates.

DD7890. SECRETARIAL POSITION - (term appointment, reposting) - Requires an AAS degree in secretarial science or equivalent experience, and demonstrated organization and administrative skills. Will provide secretarial support for Year 2000 Project & Management Plan. Duties will include maintaining spreadsheets, project schedules and contact lists; preparing presentation materials, correspondence and reports; assisting with site-wide system inventory; and maintaining supplies. MS Word/WordPerfect, Windows95 experience required; familiarity with Excel, Powerpoint, Access, or MS Project a big plus, but will train the right candidate. Requires good computer aptitude and eagerness to learn. Director's Office.

NS7523. NETWORK ANALYST POSITION - Requires a BSCS or equivalent and at least four years' applicable work experience with Ethernet LANs, ATM (LANE preferred) and SNMP network management software. Programming experience with Perl, C, C++, or Java is preferred, as are Web design skills. Responsibilities as a member of BNL's production-oriented data network team include: acting as network-documentation editor, SNMP-based network management, LAN troubleshooting, performance monitoring, Ethernet switch/hub configuration and system-alarm automation. Computing & Communications Division.

NS6495. ENGINEERING POSITIONS - (4 openings) Requires a BS in science or engineering, and a minimum of five years' experience in evaluation and application of environmental regulations to industrial and laboratory operations. Requires general working knowledge of RCRA, CWA, CAA, SDWA, TSCA, CERCLA and NYS and local environmental regulations, with expertise in at least one area. Demonstrated familiarity required with pollution-prevention concepts, with strong process engineering skills and ability proactively to analyze projects to identify and eliminate compliance problems and wastes. Demonstrated problem-solving skills are necessary. Responsibilities will include providing senior-level technical support to departments and divisions to ensure compliance with applicable laws, requirements and BNL policy. Environment, Safety & Health Services Division.

DD7704. TECHNICAL POSITIONS - (term appointments) Require experience in control wiring, soldering and the fabrication of mechanical assemblies. Will work from prints, rough sketches and verbal instructions. Will assist in installing high current power supplies and magnets. Must be familiar with hand tools; some electronic background desirable. Alternating Gradient Synchrotron Department.