

1996 Nobel Prize in Physics Holds Special Interest for BNL

This year's Nobel Prize in physics — for the discovery of superfluidity in a rare form of helium, helium-3 — has a special interest for BNL.

Two BNL-related theoretical physicists — Victor Emery in the Physics Department and Lawrence Berkeley National Laboratory's (LBNL) Andrew Sessler, who is also a Trustee of Associated Universities, Inc. — wrote a paper in 1960 that helped start pioneering experiments in the field. And, in 1966, one of the Nobelists, David Lee of Cornell University, spent a sabbatical year at BNL, working on some of the techniques later used in the prize-winning research.

The prize was won by experimentalists David Lee and Robert Richardson, also of Cornell, and Douglas Osheroff, Stanford University, for their 1972 discovery while at Cornell that the isotope helium-3 can become superfluid, flowing without normal viscosity, at a temperature of 0.002 on the Kelvin scale, very close to absolute zero (about -459.67°F).

The discovery generated such excitement because, like helium-4, the common form of helium, when helium-3 becomes superfluid, it shows effects that can be understood only in the submicroscopic world of quantum mechanics.

The comparatively large-scale effects shown by superfluid helium-3 provide new information on the collective behavior of atoms in a quantum liquid. The effects include, for example, the ability to "climb" up the walls of containers, or, when swirled about, to form vortices that appear or disappear very abruptly rather than smoothly, as would happen in ordinary liquids.

Minds Meeting

In 1960, Emery and Sessler met in Berkeley at Lawrence Radiation Laboratory, now named LBNL. Emery was on a Harkness Fellowship, while Sessler was on sabbatical leave from Ohio State University.

"We shared a very small office and began to work together," said Sessler.

Emery and Sessler had each already published papers considering the possibility that strongly-coupled



Andrew Sessler (left), Lawrence Berkeley National Laboratory and a Trustee of Associated Universities, Inc., and Victor Emery of BNL's Physics Department stand outside Berkner Hall, 36 years after their 1960 theoretical paper written at Berkeley helped start pioneering experiments in liquid helium-3.

Photos by Roger Stoutenburgh

fermion systems such as liquid helium-3 could be superfluids, in much the same way that electrons in a metal are superconducting. Fermions are a class of particles that include protons, neutrons and electrons.

Emery had examined the stability of the high-temperature state using methods developed in nuclear physics. Sessler, together with Leon Cooper and Robert Mills, had generalized the BCS theory to strongly interacting particles. The BCS theory, named for authors John Bardeen, Cooper and Robert Schrieffer, explains superconductivity in metals and involves a

weaker interaction between electrons.

Both Emery and Sessler had concluded that the existing theory would not lead to superfluidity in liquid he-

lium-3 because there is a short-range repulsion between helium-3 atoms that overcomes their longer range attraction.

"Since the whole subject was very much in our minds, it was not long before we decided to explore the possibilities further," Emery recalled.

Can Fermions Pair?

The two theorists considered whether helium-3 atoms could form pairs in angular momentum states with zero, one, two, etc., units of angular momentum, which are labeled "s-state," "p-state," "d-state," etc., in the language of atomic spectroscopy.

In the simplest generalization of the BCS theory, they found that the optimum pairing was in the d-state and estimated the temperature at which liquid helium makes the transition into a superfluid at about 0.08 K.

A similar suggestion was independently made by Keith Brueckner, Philip Anderson, Toshio Soda and Pierre Morel in the U.S., and a related, but less specific, prediction was made by Lev Pitaevskii in Moscow, all at about the same time.

"All these proposals were unexpected because people were still thinking in terms of conventional (continued on page 2)

Here & There

Zohreh Parsa, a BNL physics associate, chaired a symposium on the "Future of High Energy Colliders," October 21-25, at the Institute for Theoretical Physics (ITP) of the University of California, Santa Barbara. The symposium was held in conjunction with a five-month workshop on "New Ideas for Particle Accelerators" that Parsa is coordinating at ITP.

Among the BNL speakers at the symposium were Laboratory Director **Nicholas Samios**, offering perspectives on the future of high-energy physics; Senior Physicist **William Marciano**, discussing the physics of the standard model, and beyond; **Michael Harrison**, Associate Head of the Relativistic Heavy Ion Collider Project, on a big hadron collider; Senior Physicist **Frank Paige**, discussing the complementarity of lepton and hadron colliders; and **Robert Palmer**, Head of the Center for Accelerator Physics, sharing an overview of a muon collider.

At the New York Biotechnology Association's sixth annual meeting, in New York City, on Friday, October 25, the afternoon spotlight was on BNL as "New York's resource for genomics and structural biology."

Under the theme "New Science in New York: A Technology Development Symposium," the meeting brochure described BNL as "a multidisciplinary Department of Energy laboratory located on Long Island [that] has unique (continued on page 3)

Lab to Ship Spent Reactor Fuel

Before the end of the calendar year, BNL is planning to ship spent fuel that had been in temporary storage after being used in the High Flux Beam Reactor (HFBR) to a storage facility at the U.S. Department of Energy's (DOE) Savannah River Site, in South Carolina.

The planned shipment will go by barge from Long Island to Virginia and then by truck to South Carolina. A total of 210 spent fuel elements will be shipped in five containers in one barge shipment.

Shipments of spent fuel elements have been ongoing nationwide for over 40 years, and, like shipments of other radioactive materials, they have an excellent safety record. During that time, no fatalities or injuries have occurred in a transportation accident because of the radioactive nature of the cargo.

BNL's own history of spent fuel shipments began in 1954, when the first of about 330 shipments were made over a 22-year period, until 1976. Following legal action in the late 1970s, the court ruled that U.S. Department of Transportation (DOT) regulations prevailed, and BNL resumed shipping in 1985, making 19 shipments through 1987. All past shipments have gone either to Savannah River or to Idaho National Engineering Laboratory.

The decision to make this year's shipment by barge was influenced by discussions with stakeholders, who perceive that barging reduces impact on their communities. In addition, five containers are available for the shipment, making the barging option more efficient and cost effective.

Whether shipped by land or sea, the spent fuel is encased in a cask-type structural package that provides radiation shielding and prevents release of radiation in the event of a traffic accident. Containers must meet rigorous specifications and be able to withstand:

- a 30-foot drop onto an unyielding surface at the package's weakest point.
- a 40-inch drop onto a 6-inch diameter rod at least 8 inches long, striking the container's weakest point.
- exposure to a temperature of 1475°F for 30 minutes.
- water immersion for 8 hours.

The barge will not depart unless there is a 36-hour window of good weather.

DOT and the U.S. Nuclear Regulatory Commission provide outside regulation, and the U.S. Coast Guard provides further regulation of the barge segment of the shipment.

Earlier this year, BNL and DOE briefed local, state and federal officials on planned shipments. Also, employees may have noticed activity in the HFBR parking lot, when BNL hosted a workshop/demonstration on container handling.

Because of federal requirements, the exact shipping dates are safeguarded until after shipments have reached their destination.

The HFBR is a world-class research facility that provides neutrons to more than 200 researchers for studies in biology, chemistry, physics, materials science and medicine. For example, the reactor is used to make a tin compound that offers substantial pain relief for patients with bone cancer. The compound has shown promise in early clinical trials conducted by BNL's Medical Department.

—Mona S. Rowe

Coming Up

The Lab and its environmental record will be the topic of a forum titled "BNL Speaks Out," to be held on Saturday, November 9, at the Fine Arts Theatre of Long Island University's Southampton College. All are welcome to attend this forum, sponsored by the World Affairs Council.

The afternoon will begin at 3:30 p.m. with lobby exhibits on Brookhaven's research. Then, at 4 p.m., brief talks will be given by: Sue Davis, Associate Director for Reactor, Safety & Security; Robert Casey, Head of the Safety & Environmental Protection Division; and Jean Howard, a physician in the Medical Department. A reception will follow.

For more information, call Public Affairs, Ext. 2345. Southampton College is located on Montauk Highway in Southampton.

Inside Info

R. William Casey, Head of BNL's Safety & Environmental Protection (SEP) Division since 1988, has been named a Fellow of the Health Physics Society (HPS). He was one of six senior members of the society who were elected fellows during HPS's annual meeting this July, for their significant administrative, education and/or scientific contributions to the profession of health physics.

At the July 25 awards luncheon, Casey was presented a certificate designating him as "a Fellow of the Society in recognition of outstanding contributions to the profession of Health Physics."

A professional organization with over 6,000 members in 40 countries, HPS is dedicated to the development, dissemination and application of scientific knowledge and practical technology for radiation protection.

To protect people and the environment from unnecessary exposure to radiation, the society aims to understand the risk versus the benefits derived from radiation exposure. Among other organizations, it is affiliated with the International Radiation Protection Association, the American National Standards Institute and the National Academy of Sciences.

Nobel Special to BNL (cont'd.)

theory, which assumed that if two particles pair together in a bound state, they do so most easily in the s-state, the zero angular-momentum state," explained Sessler.

Also, Emery added, some solid-state theorists resisted the new developments because of the suggestion that fermion superfluidity could occur without the aid of a polarizable lattice, which is vital for superconductivity in simple metals.

"The new proposals stirred interest and helped start the pioneering experiments with liquid helium-3 that were done over the next decade," declared Sessler. In particular, the late John Wheatley of the University of Illinois spearheaded the push to lower temperatures and, within a year, he had established that liquid helium-3 did not become a superfluid above a temperature of 0.008 K. "This was an incredibly low temperature to achieve at such an early date," Sessler emphasized. "The world lost much with the untimely death of John Wheatley."

Theory Points to p-States

Emery, back in England at the University of Birmingham in 1963, analyzed recent experiments on liquid helium-3 and showed that the effective interaction between two helium-3 atoms inside the liquid is very different from the "bare" interaction used in the earlier calculations. This is because of the relatively high density of the liquid as well as its proximity to a state of magnetic order, similar to that found in iron. Emery found that the effective interaction is actually repulsive in d-states, but, since it is weakly attractive in p-states, he concluded in a 1964 paper: "... it is possible that [p-states] could give rise to the transition."

It was not clear at first what the 1972 Nobel-Prize winning experiment had actually found — that liquid he-

Free Raffle! Free Raffle!

If eliminating your waiting in line at the bank to deposit your pay every week or month isn't incentive enough to sign up for direct deposit, here's another reason: Two \$100 American Express gift certificates will be awarded in December in two separate raffles — and, to be eligible to win one, all you have to do is to sign up for direct deposit in November or already have your entire net pay deposited directly in the bank(s) of your choice.

As designated by the Fiscal Group in the Financial Services Division, November is Direct Deposit Month at BNL. The Fiscal Group is encouraging BNLeRs to have their entire salaries deposited directly into the bank for the following reasons:

- you can use the time you spent banking doing something better,
- for weekly employees, who usually receive their paychecks at 3 p.m., your money will instead be deposited in the bank five hours earlier, earning interest for you or available to you for withdrawal by 10 a.m.,
- your money is deposited, even when you are sick, on vacation or traveling, and
- you may have your funds automatically divided as you like among checking, savings, money market accounts, etc., or split between different banks.

Regardless of where you bank, you may learn more about the advantages of direct deposit from representatives of the on-site Teachers Federal Credit Union, who will be in the lobby of Berkner Hall during lunchtime on Wednesday, November 6, to encourage their members who have not already done so to take advantage of this benefit.

Once you have decided to take advantage of direct deposit, complete the back of the Direct Deposit Month memo recently sent to employees still receiving paychecks and return it to Payroll, Bldg. 134J. In appreciation, maybe you'll win an extra \$100 in the form of a gift certificate.

If you already have direct deposit for your entire net pay, you will automatically be entered in the raffle for the second \$100 gift certificate.

lium-3 becomes a superfluid below about 0.002 K, with pairing in p-states. Theoretical work by Tony Leggett, who was visiting Cornell from the University of Sussex, England, and experimental work by Wheatley, Emery said, contributed greatly to this understanding.

After 1960, Sessler focused most of his attention on accelerator physics at Lawrence Berkeley, where he was Director, 1973-1980. Currently, adding to his many other professional activities, he is Vice President of the American Physical Society and will be President in 1998.

Emery, who joined BNL in 1964, has since worked on low-temperature and solid-state physics, especially the theory of organic conductors and high-temperature superconductivity.

Coming in for the Cold

An attraction at BNL and the other national laboratories are the many opportunities for collaborations or informal networking among researchers and visiting scientists — a research style established under the Atomic Energy Commission and continued under the U.S. Department of Energy (DOE). On many occasions, different areas of interest benefit from the range of developments springing from a new idea or technique.

Such was the case in 1966, when scientists and technicians from the Alternating Gradient Synchrotron, Applied Science and Physics Departments were working in a loose-knit group on various aspects of cooling for experiments in superconductivity or liquid helium. The group included Paul Craig; Helen Farrell, now of DOE's Office of Energy Research (OER); Meyer Garber; Bill Sampson; and Myron Strongin. Emery had been there for two years, working on the theory of helium-3 and helium mixtures.

The year before, Thomas Kitchens, now of OER, had arrived from Los Alamos Scientific Laboratory (now Los

Alamos National Laboratory) to join a physics group headed by Craig.

From Los Alamos, Kitchens had brought with him the design of a cooling mechanism, a helium-3/helium-4 dilution refrigerator, that would reach down to new low temperatures, and Tom Oversluizen built several in Bldg. 510. Others who worked in or with the group included Boyd Osgood and Bill Thomlinson. Visitors came and went, among them, David Lee.

Lee's past experience and keen interest in the problems of getting helium-3 cold made him an ideal addition to the group. Further, the techniques being developed here were useful for his own research.

Commenting in a telephone interview on that period at BNL, Lee said "We had time and colleagues for discussions, and good technical assistance. We had fun, and we developed some of the concepts that were used later in the defining experiments."

"It's a nice example of how the friendly interaction within the national labs and the general scientific community, which is still promoted by DOE, helps establish a climate that encourages progress and discovery," Emery concluded. — Liz Seubert

CCD to Phase Out bnlux1

In December, after six years of service, the aging interactive server bnlux1.bnl.gov will be removed from service by the Computing & Communications Division (CCD). The reason is that the computer, a Digital Equipment Corporation (DEC) DECsystem 500/240, is old and slow by today's standards, and its operating system is no longer supported by DEC.

However, all services provided by bnlux1 are available on other machines or in other ways. The majority of the needs of bnlux1 users are being met by sun2.bnl.gov, a Sun Microsystems Sparcstation 20, which is more than five times as powerful as bnlux1 and runs the Solaris version 2.5.1 operating system. Therefore:

- User accounts have been moved to sun2, with the same user names and passwords as users had on ux1. Users files are now on the central file server userdata.bnl.gov.
- E-mail is now available on a new mail-only computer, mail.bnl.gov, so users have a choice of using that computer, using sun2 or having it forwarded to another

Scam Warning

Last December, an article in the Brookhaven Bulletin warned BNLeRs about a worldwide scam originating in Nigeria that had found its way to BNL. Now, almost one year later, employees are still receiving letters designed to entice them into opening their bank accounts to supposed Nigerian government officials.

While letter formats can vary, all seek to transfer millions of dollars to the recipient's account, with the promise of compensating the recipient with 20-30 percent of the total fund.

BNLeRs should *not* respond to letters that seem to fit this description; instead, send the original letters and their envelopes to Russel Reaver, Manager of the Safeguards & Security Division, Bldg. 50.

Don't Be Alarmed By Fire Engines!

If you're on site this Sunday, November 3, and hear lots of sirens and see several fire engines and ambulances, don't be alarmed: You're witnessing a drill that the BNL Fire/Rescue Group in the Safety & Environmental Protection Division is hosting with several outside fire departments, to ensure coordination between BNL and multiple outside agencies during an emergency.

Beginning at 8 a.m., the drill scenario will unfold throughout the entire warehouse area, centered on the railroad tracks at Grove Street.

The major roadways to be used by emergency responding units will be: Bell Avenue, Brookhaven Avenue, East Princeton Avenue, Grove Street, South Railroad Street, Rochester Street, Rowland Street, Weaver Drive and Upton Road.

Employees who must be on site on Sunday are asked to avoid using these streets or entering the scenario area until the drill is over, at about noon.

Organizations invited to participate in the drill include: the Brookhaven Group of the U.S. Department of Energy, Long Island Rail Road, Suffolk County Department of Fire Rescue & Emergency Services and the Police Group in BNL's Safeguards & Security Division.

The following groups will also participate with BNL Fire/Rescue, using their own engines, ambulances and/or rescue units: Gordon Heights, Manorville, Middle Island, Rocky Point, Ridge and Yaphank Fire Departments, and the Manorville Ambulance Company.

50 YEARS AGO THIS WEEK

This series, which recounts the earliest days of Associated Universities, Inc. (AUI), and BNL, will run as appropriate throughout 1996 and 1997, the 50th anniversary years of AUI and BNL, respectively.

• **November 1, 1946** - Robert Bacher, Cornell University, resigns from the Executive Committee of the AUI Board of Trustees upon his appointment as Com-

missioner of the Atomic Energy Commission. Bacher had also served on AUT's Scientific Advisory Committee.

(To be continued on November 8.)

Cut Medical, Day-Care Costs With Reimbursement Accounts

Although BNL offers comprehensive health plans, not all expenses are covered in full, such as eyeglasses, physical exams, deductibles, coinsurance and expenses above reasonable and customary limits. And, although on-site child care is available at the Lab, the cost of child care, as well as elder care, can quickly add up.

The Health Care and Dependent Day Care Reimbursement Accounts can help to pay for these expenses through salary reduction. Employees can set aside before-tax dollars to pay for out-of-pocket health and dependent day-care expenses, so actual costs are lower because of the tax savings.

Enrollment in these accounts is going on through November 29. Eligible employees — those who work at least 20 hours a week — may set aside from \$300 to \$2,500 in the Health Care Account and/or \$300 to \$5,000 in the Dependent Day Care Account.

Effective January 1, 1997, reimbursements from either the Health Care or Dependent Day Care Reimbursement Accounts will be processed only

once per month — on the 16th of each month.

Also next year, recent IRS rulings will eliminate the following expenses from being eligible for reimbursement: agency fees for au pair placements and adopting children; and registration fees paid for day care, summer camp, preschool, kindergarten, etc., unless these fees are applied toward the first tuition bill, and only if the fees are shown on the bill to be deducted from the regular tuition charge and only once that bill has been paid.

However, as of January 1, the IRS will consider the cost paid to a day-care provider for dependents' meals as a reimbursable expense, unless those meals are included as part of the cost of a field trip or other such outing.

All employees who want to sign up for 1997 must complete new forms, even if they are currently enrolled for 1996. For enrollment forms or more information, contact Muriel Pfeiffer, Ext. 2877. Forms must be returned to the Human Resources Division, Bldg. 185, by November 29, for coverage effective January 1, 1997.

Watch Out for Deer!

As the cold weather sets in, members of the Lab's large deer population come out of the woods, onto the grass at the side of the roads and, occasionally, onto the roads.

Deer do not watch out for traffic, so drivers must watch out for them. Be prepared to stop quickly should a deer bolt in front of your car, and, since deer travel in herds, don't start up again until you are sure that all the deer have passed.

Arrivals & Departures

Arrivals

Jianlin Mi.....AGS
Srinivasan Rajagopalan.....Physics
Marcus W. Schulz.....Physics

Departures

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

Vidyasagar S. Hejmadi.....Biology
Brian W. McCarrick.....Safeguards & Sec.

Here & There (cont'd.)

high energy facilities for biotechnology and pharmaceutical R&D, including the National Synchrotron Light Source, the High Flux Beam Reactor, and Protein Data Bank. These facilities, coupled with the expertise of Brookhaven's scientific staff, provide collaboration opportunities for biotechnology and pharmaceutical companies in structural biology, drug development and rational drug design."

During the spotlight period devoted to BNL, Biology Department Chair **William Studier** offered an overview; Senior Scientist **John Dunn** discussed improved Lyme disease diagnostics and vaccines through gene expression and genomics; Scientist **Walter Mangel** talked about protein inhibitors as potential antiviral agents; Senior Geneticist **Ben Burr** discussed better corn and cotton through genomics; and Biochemist **John Shanklin** talked about engineering enzymes to make better oils.

Representatives from BNL's Office of Technology Transfer were also on hand to talk to participants.

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Softball Champs '96



The Good Timers and their mascots had a wonderful time becoming League M1 champs: (front, from left) **Dina Tullo** holding **Joe** and **Theresa Tullo**, co-captain **Jennifer O'Connor** holding **Michael O'Connor**, **Kerry Bonti**, **Maryann Musso**; (back, from left) **Claudia Jones**, **Allen Jones**, **Mike O'Connor**, **Lou Nieves**, **Larry Musso**; (not pictured) **Artie Biamonte**, **Barbara Biamonte**, co-captain **Pete Bonti**, **Jerry Gaeta**, **Luke Greco** and **Diana Lombardo**.



The Phoubars barred everyone else from victory in League E1: (front, from left) **Bret Engmann**, **Keith Greiner**, captain **John Ingoglia**, **Chris Ingoglia**, **John Di Biase**, **Jim Garrison**, **Guy Mastrion**; (back, from left) **Jim Desmond**, **Joe DeVoe**, **Jim Rowehl**, **Paul Infranou**, **Bill Fox**, **Don Lynch**, **Leroy James**, **Al Boerner**; (not pictured) co-captain **Gordon Smith** and **David Verdi**.

Gift Books Galore At BERA Book Fair

On Thursday and Friday, November 21 & 22, BERA will sponsor a Book Fair, featuring fun reading ranging from children's stories to cookbooks to *New York Times* best-sellers.

These new, hardcover books will be sold at a 50-70 percent reduction. They will be in stock, ready for immediate purchase at the fair.

A list of available books and a small, pre-sale display will soon be available at the BERA Sales Office, Berkner Hall, from 9 a.m. to 1:30 p.m. weekdays until the first day of the fair.

For more information, call **Andrea Dehler**, Ext. 3347, or **Kay Dellimore**, Ext. 2873.



Lights Out were the brightest spot in League E2: (front, from left) **Bob Chanda**, **Brett Magee**, **Armand DiFlippo**, **John Biermer**; (back, from left) **Rich Chernis**, **Harry Hacker**, **Mike Wenzek**, **Bruce Yanofsky**, **Rich Alles**, **Gene Sorensen**, co-captain **Steve Farrell**, MVP **Ernie Schmitt**; (not pictured) **Bob Edwards**, captain **Bob Geib**, **Toshi Hayakawa**, **Joe Loronzoni** and **Pete Picciano**.



The Stray Cats scratched their way to the top of League M2: (front, from left) **Bob Miltenberger**, **Heather Hartmann**, **Sue Behrens**, **Bill Behrens**; (back, from left) co-captain **Andrea Epple**, **Kathryn Clifford**, **Bob Tozzie**, **Nancy May**, **Terri Kneitel**, **Ralph Mevs**; (not pictured) **Sue Anderson**, **Norb Hartmann**, **Debbie Langdon**, **Tommy Langdon**, **Glenn Mehl**, **Tina Mehl**, co-captain **Robb Merkel**, **Nancy Tozzie** and **Doug Warren**.

Computing Corner

The Computing & Communications Division (CCD) offers the following:

Netscape/Eudora E-Mail

On Thursday, November 7, the Personal Computer Resource Center will demonstrate how to set up e-mail options using two applications: Netscape, from 10:30 to 11 a.m.; and Eudora, 11 to 11:30 a.m. To reserve a seat for either presentation in the second floor seminar room, Bldg. 515, call Ext. 5444.

PC Training

In November, training in popular Microsoft applications for the personal computer will be offered in: Windows 95, beginner and intermediate ACCESS, beginner and intermediate PowerPoint, beginner and intermediate Project, and beginner Word.

While ACCESS and Project will be covered in two-day classes, the other classes are one day; the fee is \$177.75 per day of training. To register, send an ILR for the correct amount to Pam Mansfield, Bldg. 515. For more information, call her at Ext. 7286 or e-mail pam1@bnl.gov, or contact your department or division's training coordinator.

UNIX Training

UNIX training is being planned for January. Classes will include: introduction to UNIX, Perl programming, Solaris system administration, and UNIX system 5 internals. Depending upon the length of each class, the training fee per person will be \$300-800.

For more information and to register your interest, contact **Ed McFadden**, Ext. 4188 or e-mail emc@bnl.gov, or **Pam Mansfield**, Ext. 7286 or e-mail pam1@bnl.gov.

Tonight: Wine & Cheese

All are invited to the Brookhaven Women in Science (BWIS) Wine & Cheese Party, tonight, Friday, November 1, from 5:15 to 7 p.m. in the Recreation Building.

Archery Club

The Archery Club will hold its next meeting on Thursday, November 7, at noon in the large seminar room, Physics, Bldg. 510. New members are always welcome. For more information, call Bill Schoenig, Ext. 2377.

Dosimetry badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

Volleyball

Standings as of October 24			
Open League		League I	
Shank, Carry & Throw	8-1	Bikers 'n Spikers	5-1
Pass, Set & Crush	4-2	Rude Dogs	6-3
Death Volley	3-3	Scared Hitless	4-2
Far Side	2-7	Net(e)scapers	3-6
Spikers	1-5	Set to Kill	0-6
League II		League III	
Spiked Jello	6-0	Silver Bullets	6-0
Safe Sets	3-0	Group Sets	6-0
Fossils	4-2	Just 4 Fun	6-0
Monday Nite Live!	2-1	Upton Ups	6-0
Jao-About-That	3-3	Over-in-Three	0-6
Lift, Carry, Throw	3-3	Court Hogs	0-6
Nuts & Bolts	2-4	New Comers	0-6
Night Court	1-5	OER	0-6
Jolly Vollies	0-6		

Classified
Advertisements

Placement Notices

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

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

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

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

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

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 2229. TECHNICAL POSITION - (term appointment) Requires an AAS in electronic technology or equivalent and familiarity with digital electronics. The ability to read schematic diagrams and a familiarity with machine-shop tools also required. Working in STAR data acquisition, will repair, upgrade and populate with components printed circuit boards, using surface-mount techniques. Will assist in testing finished assemblies, perform quality control on incoming parts, assist in ordering parts and manage parts inventory database. Additional duties include the fabrication of sheet-metal assemblies for prototypes. Physics Department.

NS 0077 BIOLOGY ASSOCIATE POSITION - (term appointment) Requires MS or PhD in biophysics or related field, and knowledge of computer systems, automation and diffraction techniques. Familiarity with biochemical laboratory procedures is highly desirable. Duties include maintenance of the membrane diffractometer and computer systems at the HFBR; assisting beam-line experiments, including sample preparation and data analysis; and assisting in the deposition of thin-film multilayer devices. Biology Department.