the Bulletin

BROOKHAVEN NATIONAL LABORATORY

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Victor Emery to Receive Buckley Prize in Condensed Matter

Shares Honor With Scientist From Denmark

Victor Emery, Physics Department, and Alan H. Luther of NORDITA in Copenhagen, Denmark, have been chosen to receive the American Physical Society's (APS) 2001 Oliver E. Buckley Prize in Condensed Matter Physics.

The two scientists will share the $5,000 prize, sponsored by Lucent Technologies, which they will receive at the APS March 2001 meeting in Seattle, Washington. In addition, Emery and Luther will receive a citation that honors them for "their fundamental contribution to the theory of interacting electrons in one-dimension."

"Alan Luther and I did this work 25 years ago, and I am gratified that it is now being recognized," Emery said.

Particles that carry the current in an electrical conductor, electrons, have two significant properties: a negative electrical charge and spin, which is analogous to the rotation of a top. Since all electrons have the same charge, they repel each other electrically.

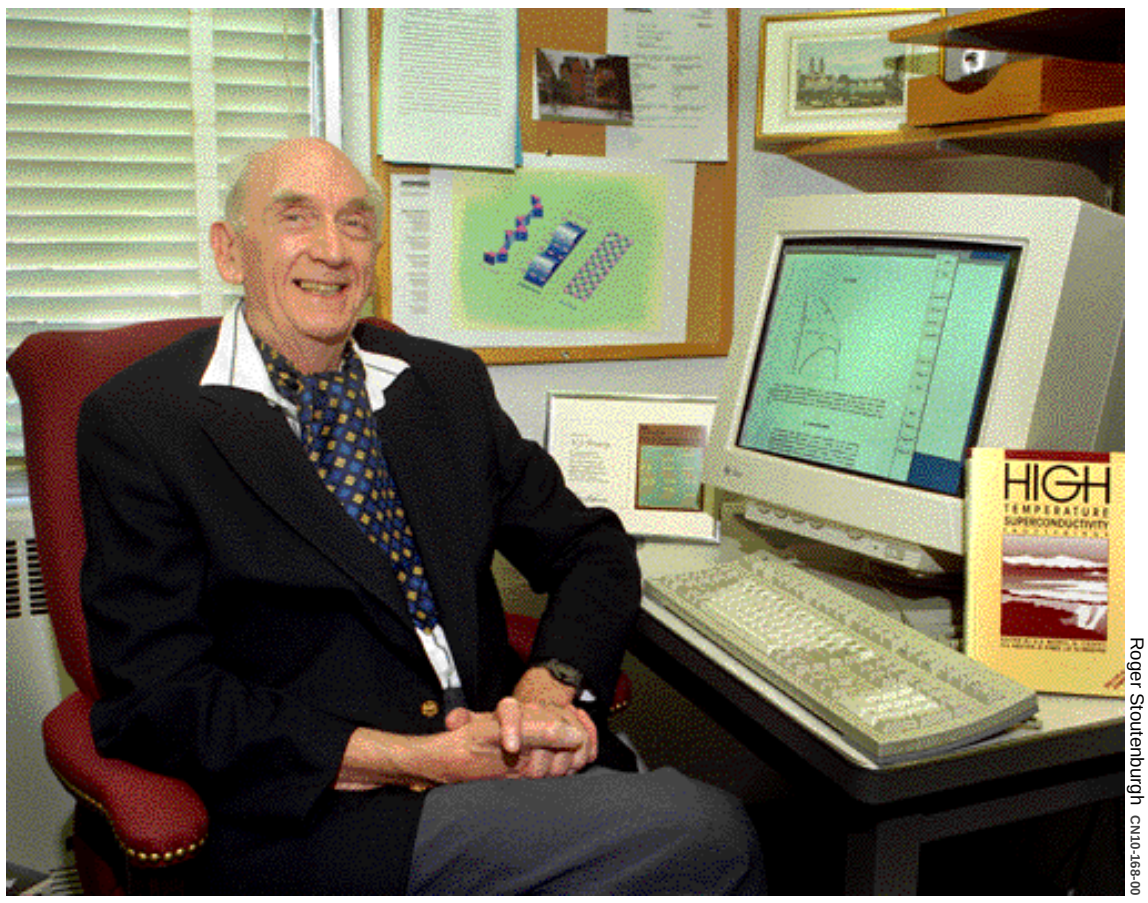
As simple as this sounds, it is extremely difficult to describe the detailed behavior of a gas of interacting electrons. Emery and Luther found that they could obtain an exact mathematical description of such an interacting electron gas if they considered an idealized model with only one spatial dimension, as if all the electrons were lined up in a single row.

Although the real world is three-dimensional, some materials act one-dimensionally, such as organic superconductors, chain-like molecular solids that lose all electrical resistance at temperatures close to absolute zero (-459.7˚F).

Working with their one-dimensional model, Emery and Luther discovered that the charge and spin excitations, or movements, of the electron gas act independently, as if each electron were split into fractions. Since previous theorists believed that charge and spin were collective and could never be separated, this was an amazing finding.

Today, Emery and Luther's theory is believed to be of crucial importance for understanding high-temperature superconductors because they form one-dimensional systems called stripes.

In explaining this theory, Emery compared the flow of electrons to the flow of water, saying, "Most electrical conductors are like a flood, in which the current flows in the direction of voltage, and the voltage can go in any direction. In contrast, superconductors are like rivers of charge, and the charge flows in only two directions — up and down river."



Roger Stoutenburgh CN10-168-00

Honored for his contribution to the theory of interacting electrons in one dimension, Victor Emery, Physics, is one of two scientists who has been chosen to receive the American Physical Society's 2001 Oliver E. Buckley Prize in Condensed Matter Physics.

Born in England, Emery earned a B.Sc. in mathematics from the University of London in 1954, and a Ph.D. in theoretical physics from the University of Manchester in 1957.

Emery was a research associate in the Cavendish Laboratory in Cambridge, England from 1957 to 1959, and a Fellow at the University of California at Berkeley from 1959 to 1960, later becoming a visiting assistant professor there, from 1963 to 1964. From 1960 to 1963, he was also a lecturer at the University of Birmingham, England.

Emery started his career at Brookhaven in 1964 as an associate physicist. He received tenure at Brookhaven in 1967 and was promoted to senior physicist in 1972. He served as the associate chair of the Laboratory's Physics Department, 1981-1985.

Emery is the second scientist from Brookhaven to win the Buckley Prize. Gen Shirane, Physics Department, won it in 1973.

— Diane Greenberg

Scientists Decode Genes of Microbe That Thrives in Toxic Metals

Genetic information may lead to advances in cleaning up contaminated soil

Understanding the genetic makeup of microbes that thrive in polluted environments may one day help scientists engineer bacteria that can clean contaminants from soil.

In a step toward that goal, DOE's Joint Genome Institute (JGI) has just released the draft gene sequence of one such toxin-tolerant bug. The bacterium, known as *Ralstonia metallidurans*, is being deciphered by John Dunn and Geoffrey Hind of Biology, in collaboration with scientists in Belgium and others at JGI.

This bacterial strain was first isolated in 1976, from the sludge of a settling tank in Belgium that was polluted with high concentrations of heavy metals. Examination revealed that, in addition to its chromosomal genes, *Ralstonia* has two large plasmids — genetic material that is separate from the chromosomal genes necessary for ordinary cell function.

According to Dunn, these plasmids house genes that make *Ralstonia* resistant to the harmful effects of a wide array of heavy metals, including zinc, cadmium, cobalt, lead, copper, mercury, nickel, and chromium.

"Having a draft sequence of the *Ralstonia* genome, which contains some 3,000 genes, will make manipulation of these naturally existing resistance factors much more practicable," says Dunn. "Eventually, we'll want to understand how these genes are regulated under a variety of growth conditions and in different environments to see how they might be applied in bioremediation."

For example, through genetic engineering, scientists might be able to transfer the heavy metal-resistant genes from *Ralstonia* into other microbes that decompose organic pollutants. Or alternatively, the scientists might use *Ralstonia* as a host for other bacterial genes that would enable it to break down a variety of pollutants.

In either case, the result would be bacterial strains with a combination of traits: ones that can tolerate heavy metals in a polluted environment while digesting organic contaminants to convert them to harmless forms.

Ralstonia has another benefit in that the heavy metals tend to accumulate on the surface of the cell. "If you let that happen for a period of time and then remove the bacteria from the soil, you can remove the heavy metal contaminants as well," says Dunn.

In another potential application, scientists could link *Ralstonia*'s uptake of heavy metals to genes that cause bacteria to glow, or bioluminesce. Bioluminescing bugs could then be used to indicate the presence of heavy metals in soil. The higher the concentration of metals, the brighter the glow.

"What we're doing is building on the diversity of biology," says Dunn. "Here's a bacterium that potentially could be used as a tool to help us clean up the environment and to monitor how well we're accomplishing that goal."

Scientists have already developed ways to transfer genes and plasmids to and from the *Ralstonia* strain. They've also demonstrated that *Ralstonia* is a good host strain for expressing genes from other bacteria, including genes involved in degrading organic pollutants.

"Because the genes that confer heavy-metal resistance are on a plasmid, it makes our job easier," says Dunn. "In nature, plasmids often act as 'shuttle buses' to transport genes from one bacterium to another," he explains.

(continued on page 3)

Roger Stoutenburgh CN1-11-01

Team members (from left) John Dunn, Safieh Taghaui, Daniël van der Lelie, and Geoffrey Hind are working with others to decipher the genome of a heavy metal-loving bacterium, which may one day help clean contaminants from soil.

Calendar
of Laboratory Events

- *The BERA Sales Office is located in Berkner Hall. It is open on weekdays from 9 a.m. to 3 p.m. For more information on BERA events, contact Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.*
- *Additional information for Hospitality Committee events can be found at the Lollipop House and the laundry in the apartment area.*
- *The Recreation Building is located in the apartment area.*
- *Calendar events flagged with an asterisk (*) have an accompanying story in this week's Bulletin.*

— EACH WEEK —

Tuesdays: Welcome Coffee
10-11:30 a.m. Recreation Bldg. Newcomers meet friends. Mimi Luccio, 821-1435
— Hospitality event

Wednesdays: On-Site Play Group
9:30 a.m.-11:30 a.m. Recreation Bldg. Parents meet while children play. Free, drop in any time. Monique de la Bey, 399-7656. — Hospitality event.

Wednesdays: Dance Lessons
6-9 p.m., North Ballroom, Brookhaven Ctr.
Latin & Swing Dance Club's beginner - advanced lessons Marsha Belford, Ext. 5053.

Wednesdays: Yoga Practice Sessions
12:10-12:50 p.m., Recreation Bldg., free
More information, Ext. 3924.

Tues. & Thurs: Aerobic Dance
5:15 p.m., Recreation Bldg. $4 per class or $35 for any 10 classes. Pat Flood, Ext. 7886; Susan Montelone, Ext. 7235.

Mon., Tues., & Thurs: Cardio Kickboxing
Day Classes*: noon-1 p.m. Mon. & Thurs.*
Evening Classes *5:15-6:15 Tues. &Thurs.*
Mary Wood, Ext. 5923, or wood2@bnl.gov.

— NEXT WEEK —

Tuesday, 1/30

Voicestream Wireless Demo
10 a.m. to 2:30 p.m., Berkner Hall. For more information, contact Richard Goll, (516) 343-5900.

Wednesday, 1/31

*Brookhaven Lecture
4 p.m., Berkner Hall. Chi-Chang Kao, NSLS, presents "A Softer X-Ray View Into the Diamond Anvil Cell: Electronic Structure of Materials Under High Pressure."

Thursday, 2/1

BERA Bridge Club
7 p.m., Berkner Hall cafeteria For more information, contact Morris Strongson, Ext 4192, or mms@bnl.gov.

Friday, 2/2

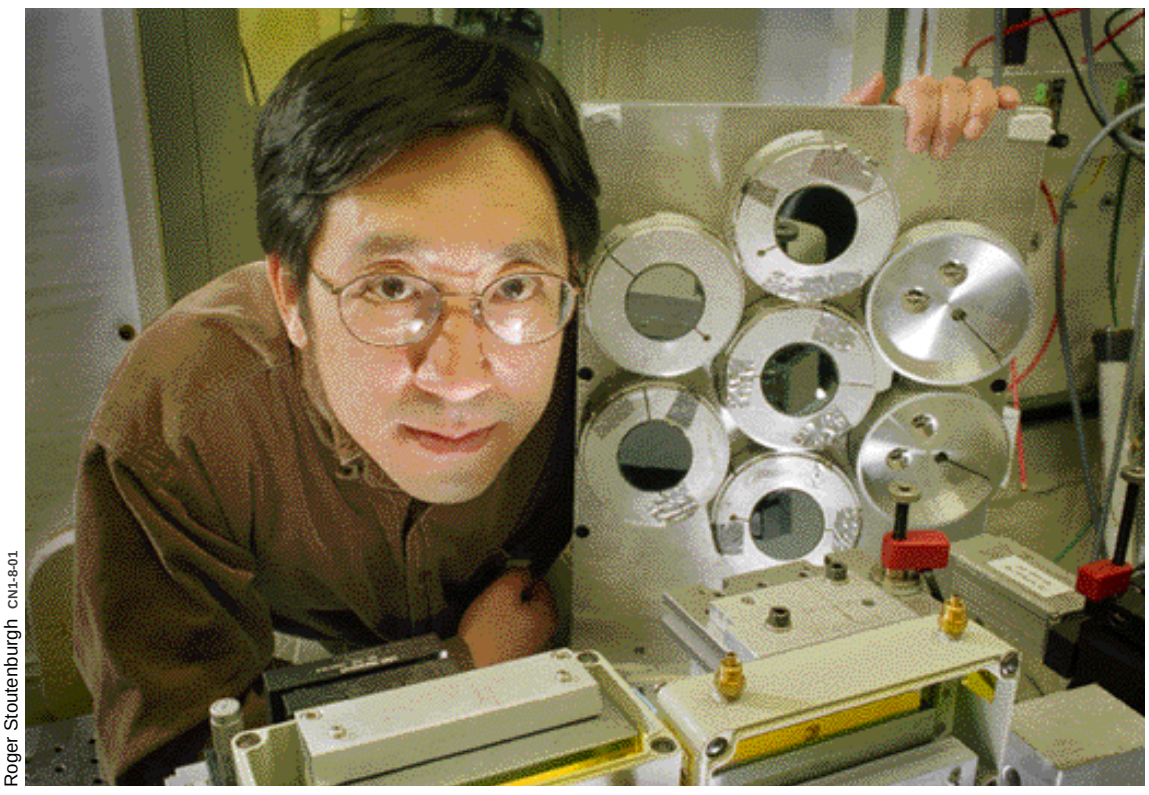
Healthline Lecture Series
noon - 1 p.m. in Berkner Hall Caring for Aging Parents/ Relatives, part 1 - "Relationships and Community Resources Overview" presented by George Roach. Check your mailbox for registration forms.

360th Brookhaven Lecture

Mimicking Conditions at the Center of the Earth

At the National Synchrotron Light Source (NSLS), researchers are using a newly modified instrument — a diamond anvil with a beryllium gasket — to exert high pressure on transition metals, such as iron, cobalt, and chromium, to study their electronic structure. To understand the geophysics of the earth, the scientists hope to mimic the conditions at the center of the earth, where such transition metals are under extremely high pressure.

Chi-Chang Kao, a physicist in the NSLS Department, will explain this research in more detail in the Brookhaven Lecture on Wednesday, January 31, at 4 p.m. in Berkner Hall. The title of the lecture is "A Softer X-Ray View Into the Diamond Anvil Cell: Electronic Structure of Materials Under High Pressure."



Roger Stoutenburgh CN1-8-01

Chi-Chang Kao, NSLS, studies the electron structure of transition metals using a newly modified instrument — a diamond anvil with a beryllium gasket. Kao will deliver the next Brookhaven Lecture on Wednesday, January 31, at 4 p.m. in Berkner Hall.

David Mao of the Carnegie Institute invented the diamond-anvil method in the 1960s, but, until this time, only high-energy x-rays or lasers were used for light source studies. With Mao, Kao recently designed a beryllium gasket for the anvil. Then, Kao and James Ablett, University of London, developed microfocusing optics to focus the x-rays into the diamond anvil cell.

These modifications to the diamond anvil enabled Kao to use softer x-rays for x-ray spectroscopy studies, thus enabling him to determine the electronic structure of the transition metals under high pressure.

A month after earning his Ph.D. in chemical engineering from Cornell University in 1988, Kao started as a postdoctoral research associate at BNL. He became an assistant physicist in 1990, associate physicist in 1992, and physicist in 1994. He was awarded tenure in 1997.

— Diane Greenberg

Lori Cunniff Named ESD Manager

Loretta (Lori) Cunniff, an environmental professional with more than 17 years of experience, was named manager of BNL's Environmental Services Division (ESD), effective December 1.

Cunniff replaced Bet Zimmerman, who left BNL after heading the division since its inception in 1998.

As ESD manager, Cunniff heads a staff of 36 environmental and administrative professionals who work to ensure BNL operates in an environmentally responsible manner and complies with all applicable permits and regulations.

The division leads programs to promote pollution prevention and manage wildlife on the site. ESD also maintains air, soil, and groundwater monitoring programs and assists in environmental restoration activities.

Thomas Sheridan, BNL's Deputy Director for Operations, said Cunniff will continue Zimmerman's legacy of strengthening BNL's environmental programs. "Lori has very strong leadership, communication, interpersonal, customer service, technical, and problem-solving skills," he said. "She is well-suited to sustain the Laboratory's recent achievements in the area of environmental stewardship and take the program to the next level, while balancing environmental protection with our scientific mission."

Roger Stoutenburgh D0021200

Lori Cunniff

Cunniff said she is looking forward to the challenges posed by her position, but believes BNL is and will continue to head in the right direction.

"The past two years have really been a turning point for Brookhaven," she said. "I'm anxious to move forward, and I know I have a great team and that we can do some good things here."

In her new role, Cunniff said she plans to focus on continued enhancement of BNL's environmental support services, and pollution-prevention and waste reduction initiatives.

"I plan to continue to work closely with the line managers and scientific staff to get their perspective," she said. "We want to give them the support they need so they can do their work while maintaining environmental compliance."

ESD keeps close tabs on any impact BNL's operations might have on the environment and is charged with monitoring current groundwater quality near the Lab's operating facilities. In recent years, ESD began an enhanced groundwater monitoring program, installing more than 80 new groundwater monitoring wells around operational and support facilities to determine whether measures designed to protect the environment are working.

"We need to be proactive and solve problems to allow Brookhaven to focus on science," she said. "These programs allow us to stay ahead of any potential problems and keep that focus where it should be."

Lori Cunniff has a bachelor's degree in biology and geology from the State University of N.Y., College at Cortland. Cunniff is a certified environmental professional. She was elected 1999 Environmental Professional of the Year by the Northwest Florida Association of Environmental Professionals, and, in 1996, received the Adam Bielecki Award from the Industry Environmental Association for balancing industrial and environmental issues.

From 1986 to 1996, Cunniff served in a number of positions in the Dade County Department of Environmental Resources Management, including chief of the Sustainable Environment and Education Office, manager of the county's solid-waste program and coordinator of its pollution-prevention program.

From 1996 to 1999, she was the director of the Neighborhood and Environmental Services Department in Escambia County, Florida, with a staff of 90 and annual budget of $17 million. Cunniff joined BNL in November 1999 and served as an environmental compliance representative for several departments.

— Pete Genzer

L.I. Weather of 2000: Normal Temperature, Wet Summer

Where were you during the summer of 2000? You were probably indoors more than you wanted to be if you were residing or vacationing on Long Island.

With 8.37 inches of rain, 2000 had the second wettest July since BNL started keeping meteorological records in 1949. The wettest July occurred in 1969, when 8.62 inches of rain soaked the area.

From July 25 through August 19, 2000, only five days were rain-free. The millennium year brought 54.4 inches of precipitation — six inches more than average.

Overall, Long Island's weather was calm in 2000, with no hurricanes affecting the area. Only 14 inches of snow fell during the winter of 1999-2000, while the average yearly snowfall is 29.3 inches. This contrasts with the 22 inches of snow that has already fallen this 2000-2001 winter season.

BNL's meteorologist Victor Cassella, Environmental Sciences Department, predicts that the trend will continue.

"The last four winters have brought us below-average snowfalls," he said. "Over the last 51 years, we've never gone five consecutive winters with below-average snowfalls, so we're due for a cold, white winter."

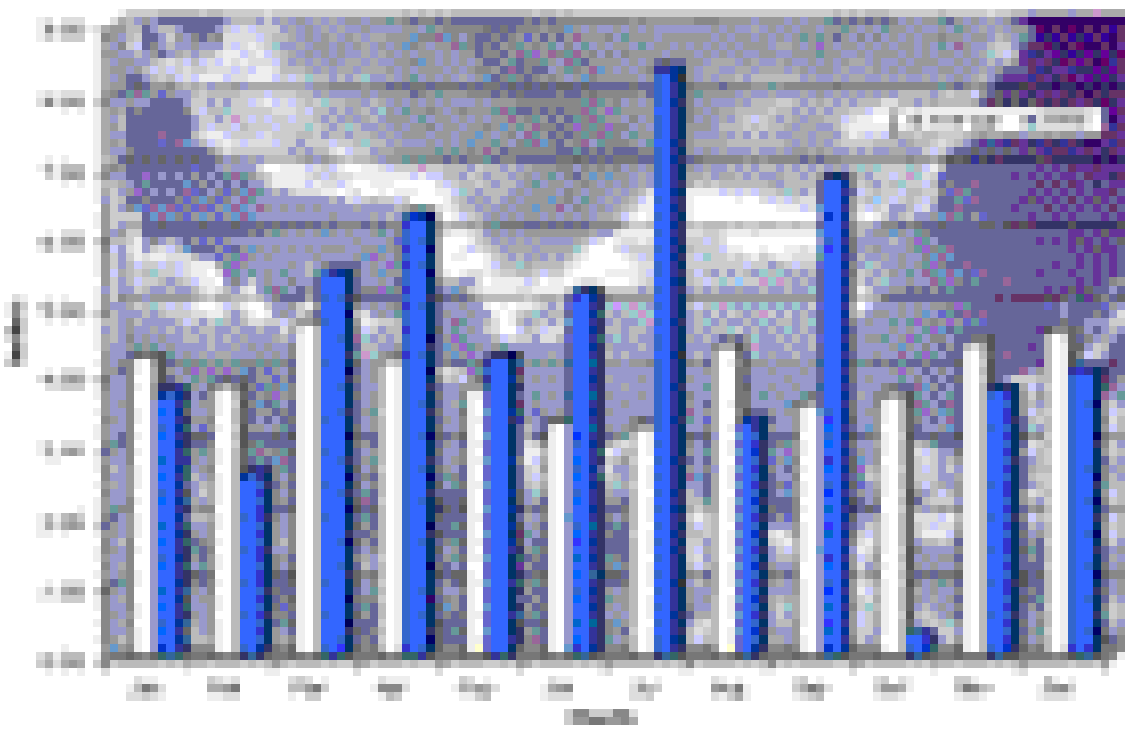
In predicting weather patterns for 2001, one more recent piece of weather data must be taken into account, according to Cassella. October of 2000 was a very dry month, with 0.3 inches of rain — only the third time in Brookhaven Lab's meteorological history that less than one inch of rain fell in that month.

"That fact is significant," Cassella said, "because whenever rainfall in October has been very light, snowfall in that same year has been very heavy, with 10 to 15 inches above-average snowfall. So far, this is true for the winter of 2000-2001, as December had twice the normal amount of snow for the month."

Temperature extremes were not common last year. With an average yearly temperature of 50.6˚F, 2000 was only 0.6˚F above the yearly average temperature for the past 51 years. This was a dramatic change from the last two years, which were far hotter than normal. In 1999, the average yearly temperature was 52.7˚F, and, in 1998, it was 53.1˚F, the hottest year on record.

Nevertheless, five record high temperatures were recorded in 2000. January 2 and 3 brought two consecutive highs of 57˚F and 66˚F. The previous consecutive highs for these dates were 56˚F in 1979, and 53˚F in 1953. Two new highs were recorded in March, as well — 67˚F on the 9th, beating the record of 60˚F set in 1987, and 67.5˚F on the 24th, which was one-half degree warmer than the previous record, also set in 1987. On October 3, a high of 79˚F was one degree higher than the record set in 1950.

— Diane Greenberg



The graph shows the average monthly precipitation in 2000, compared with the overall average monthly precipitation for the past 51 years.

Computing Corner

The Information Technology Division (ITD) has scheduled the following PC training classes for February:

date	class	level
2/2	Word	intermediate
2/7 & 2/8	Word	advanced
2/9	PowerPoint	intermediate
2/14	Windows	basic
2/21 & 2/22	Access	beginner
2/28	Outlook	

To register for the above classes or to request future classes, submit a training request form and an ILR or Web requisition for the appropriate amount to Pam Mansfield, Bldg. 515, and your name will be placed on a waiting list. Classes are scheduled based on the number of requests received. See the ITD training page at www.bnl.gov/itd for more information and course schedules.

Committee Seeks Nominees for 2001 BERA Board

All employees, facility users, visitors, and guests who wish to propose a nominee for the 2001 BERA Board election should contact one of the following individuals no later then February 9. Make sure that the person being proposed will agree to accept the nomination if selected by the nomination committee.

Name	Dept.	Bldg.	Phone
Christine Brakel	AS&T OTT	475D	7134
Mike Buckley	NSLS	725D	8097
Melanie Covitz	Staff. Serv.	179B	2553
Frank Dusek	AGS	912	2022
Tirre Farmer	Plant Eng.	452	3288
Augie Hoffman	Physics	510C	3884
Darcy Mallon	Dir. Office	475D	3362
Rosemary Taylor	ESD	535A	3251
Hal VanDeroef	RHIC	902A	2012/4827
Susan Wells	FSD	459	7427
Mitch Williams	RHIC	902A	7160

Calendar *(continued)*

— WEEK OF 2/5 —

Tuesday, 2/6

Healthline Lecture Series

noon - 1 p.m. in Berkner Hall Caring for Aging Parents/ Relatives, part 2 - "Legal and Financial Concerns" presented by George Roach. Check your mailbox for registration forms.

Saturday, 2/10

BNL Gospel Choir Concert

3 p.m., Berkner Hall Auditorium. Four guest choirs will also be performing. Refreshments will be served. $10 per person - tickets available in the BERA Store.

— WEEK OF 2/12 —

Wednesday, 2/14

Rifle & Pistol Club Meeting

Noon, Conference Room, Bldg. 535A. For more information, contact Jim Dunan, Ext. 5993, Sue Foster, Ext. 5529, or the club's hotline, Ext. 2658.

Friday, 2/16

Women Engineer's Lunch-Time Networking Meeting

Noon, Berkner Hall, Room A. Contact Lorraine Merdon, Ext. 3318.

— WEEK OF 2/19 —

There will be no Bulletin published this week due to a BNL holiday.

Monday, 2/19

Brookhaven is closed today in observance of Presidents Day.

Note: This calendar is updated continuously and will appear in the Bulletin whenever space permits. Submissions must be received by the preceding Friday at noon to appear in the following week's Bulletin. Please enter the information for each event in the order listed above (date, event name, description, and cost) and send it to bulletin@bnl.gov. Write "Bulletin Calendar" in the subject line.

Microbe Genes *(cont'd.)*

The scientists are also working on ways to *limit* the ability of bacteria to spread genes — so they'll stay in the bacteria where the scientists put them. This can be done by crippling *Ralstonia*'s ability to transfer genes, or by using host strains that don't normally transfer genes, Dunn says.

Ralstonia metallidurans, formerly known as *R. eutropha* and *Alcaligenes eutrophus*, is one of 15 bacterial genomes deciphered by JGI researchers last October, during what was called "Microbial Month."

JGI is a consortium of several DOE labs that aims to develop and use new sequencing and computational technologies with the goal of discovering and characterizing the basic principles and relationships underlying living systems. The research on *Ralstonia* was funded by DOE's Natural Accelerated Bioremediation program.

— Karen McNulty Walsh

Arrivals & Departures

Arrivals

Sheeba R Arnold
Medical

Blair P. Bromley
Energy Science & Technology

Daniele Davino
Collider - Accelerator

Daxiong Fu
Biology

Marek Malac
Environmental Science & Technology

Jennifer M. Morse
Physics

Tricia A. Spoto
Medical

Randy Woodous
Radiological Control

Departures

Hugo Brunert
Collider - Accelerator

Teresa Fryberger
Energy, Environment & National Security

John Rubino
NSLS

Yagmur Torun
Physics

Elizabeth A. Zimmerman
Environmental Services

BSA Noon Recital, 1/31

Eight-String Guitarist Paul Galbraith to Perform at Berkner

All are welcome to the free recital to be given by guitarist Paul Galbraith on Wednesday, January 31, at noon in Berkner Hall.

Galbraith's unique eight-string guitar and his playing position are ground-breaking in the history of the instrument and its performance practice. His guitar has two extra strings — one high, one low; the guitar itself is supported by a metal endpin that rests on a wooden resonance box. These special features increase the instrument's expressive range.

Galbraith first won public acclaim in Great Britain at the age of 17 when his performance at the Segovia International Guitar Competition won him the Silver Medal. This award helped launch an international career including engagements with some of the finest orchestras in Britain and Europe, including the Royal Philharmonic, Chamber Orchestra of Europe, BBC Philharmonic, Scottish Symphony Orchestra, English Chamber Orchestra, and the Scottish Chamber Orchestra. He toured the U.S. as soloist with the Moscow Chamber Orchestra, and performed in Prague's Dvorák Hall with the National Chamber Orchestra of Chile. His international touring has also brought him to Canada, Spain, Italy, Greece, Norway, Hungary, Brazil, China, India, and Iceland.

Paul Galbraith

Galbraith's New York debut at the Frick Collection received rave reviews from *The New York Times*, and his subsequent engagement in Lincoln Center's "Great Performances" series was sold out.

Send a Love Note to Your Valentine

Is there a special message you'd like to send to your valentine? Are you looking for a valentine? You can have your Valentine's Day message printed in The Bulletin on February 9.

Send your 15-to-20 word "love note" to The Bulletin, Bldg. 134, by Friday, February 2. Use a Sales & Notices Bulletin classified ad form, but mark it "Valentine's Day." You must sign your name and include your life number and extension, but your name will not be printed unless it is clearly part of the message. Copy must be deemed tasteful. All "love notes" will be accepted at The Bulletin's discretion. Only one message per employee please.

Volleyball Standings

as of January 12, 2001

Mixed League 2

Nuts & Bolts
28 - 5

Spiked Jello
21 - 12

Upsetters
19 - 14

Wazups
15 - 18

Group Sets
15 - 18

Underdogs
1 - 32

Open League A

Drilling & Excavation Co.
27 - 6

Shank, Carry, & Throw
21 - 11

Far Side
9 - 24

Death Volley
8 - 25

Open League B

Dump & Dink
29 - 4

Easy Spikers
24 - 6

Late Entry
17 - 16

Monday Night Live
17 - 16

Setting Ducks
17 - 16

PHENIX Fire
12 - 18

STAR
4 - 23

Bumpin Uglies
6 - 27

Mixed League 3

Upton Ups
31 - 8

Net Workers
20 - 19

Net Setters
18 - 18

NWO
17 - 22

Six Samurai
10 - 29

BERA One-Day Ski Trip

BERA is sponsoring a one-day ski trip to Camelback Mountain Ski Resort in Pennsylvania on Wednesday, February 21. The cost is $45 per person, which includes round-trip bus transportation and a lift ticket. Ski rental packages are available at the resort for an additional $15. Bus leaves from the Brookhaven Center at 5:30 a.m., and returns at 9 p.m. Make reservations before Wednesday, February 14 at the BERA Sales Office. For more information, contact Andrea Dehler, Ext. 3347; Tom Dilgen, Ext. 7455; or Bob Marascia, Ext. 7779.

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 list of all job openings; use a TDD system to access job information by calling (631) 344-6018; or access current job openings on the World Wide Web at www.bnl.gov/JOBS/jobs.html.

OPEN RECRUITMENT – Opportunities for Laboratory employees and outside candidates.

MK9138. ASSISTANT SCIENTIST – Requires a Ph.D. in chemistry and at least two years postdoctoral experience relating to PET research in order to conduct experimental work relevant to the design, synthesis, and rapid purification of radiotracers labeled with fluorine-18 and other radionuclides. Initial studies will focus on two areas: radioligands for *in vivo* imaging of the brain cannabinoid CB1 receptor and the labeling of antisense oligonucleotides to test the feasibility of in vivo imaging of the interaction of these molecules with endogenous nucleic acids and other macromolecules. Lesser-experienced individuals would be consider for research associate position. Under the direction of Y.-S. Ding and S.J. Gatley, Medical Department.

MK9109. ASSISTANT SCIENTIST – Requires a Ph.D. in structural biology or crystallography and have demonstrated the ability to determine macromolecular structures independently. Knowledge of toxins and their structure-function relationships is desirable. Will be involved in the ongoing program of "Toxin and virulence factor structure/function determinations" and will help to develop a program for studying the mechanism of inhibition of toxicity by determining structures of toxin-inhibitor complexes leading to drug design. Will work in collaboration with scientists from other laboratories. Under the direction of S. Swaminathan, Biology Department.

MK9075. POSTDOCTORAL RESEARCH ASSOCIATE/ASSISTANT SCIENTIST – (Reposting) Requires a Ph.D. Will work in the PET Program as a medical physicist in the development and application of new scientific tools for imaging living systems. Major responsibilities include the operation and maintenance of the cyclotrons, the development, maintenance and advancement of accelerator targetry and isotope delivery systems and the performance of research related to radionuclide and precursor production and new PET imaging instrumentation. Under the direction of J. Fowler, Chemistry Department.

MK9078. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in chemistry and a strong background in chemical kinetics and free-radical reactions to perform studies on the reactivity of peroxynitrate and related nitrogen-oxygen compounds, including their radiation-induced generation and oxidation of organic and inorganic materials. Practical experience in fast kinetic techniques (stopped-flow, pulse radiolysis and flash-photolysis) and chromatographic methods (HPLC, IC, and GC) is preferred. Familiarity with computer molecular modeling and analysis of reaction mechanisms is desirable. Under the direction of S. Lymar, Chemistry Department.

MK8913. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in solid state physics or related field with experience with neutron or x-ray diffraction desirable. As part of the Neutron Scattering Group, will be utilizing the unique capabilities of neutron scattering to study forefront problems in condensed-matter physics, such as correlated-electron phenomena, high T_c superconductivity, low-dimensional magnetism, and other problems related to nanoscience. Will be expected to develop an independent research program. The neutron experiments will be performed at US reactor facilities, ORNL and NIST and at other international neutron facilities. In addition, complementary x-ray diffraction facilities are available at the National Synchrotron Light Source in collaboration with the Laboratory's X-ray Diffraction Group. This position is under the direction of J. Tranquada. Physics Department

MK8912. POSTDOCTORAL RESEARCH ASSOCIATE – Requires a Ph.D. in theoretical condensed-matter physics and experience in first-principles electronic structure calculations. Research will be directed towards understanding the electronic and magnetic properties of nanostructures. Interest in collaborating with experimentalists is highly desirable. Under the direction of M. Weinert, Physics Department.

NS2037. PROGRAMMER POSITION (Web design/development) – Requires at least three years' experience in web site design and administration. Knowledge and experience with FrontPage, HTML, CGI, PERL, Photoshop, and the MS Office Suite necessary; experience with Javascript desirable. Proven ability to meet deadlines, juggle simultaneous tasks and keep skills current is necessary; strong teamwork and interpersonal skills are essential. Will develop and maintain the content of the NSLS's main web pages and assist other department members in creating their own pages. Responsibilities include content management, maintaining the system homepage; installing, maintaining, and operating the web server software and other web-related software. Will assist system administrators maintaining the Windows NT web servers and workstations that are used to develop content. National Synchrotron Light Source Department.

TB8773. CONTRACTS SPECIALIST POSITION – Requires a BA in business or equivalent and knowledge of Federal Acquisition Regulations. Responsible for procurement, administration, coordination, and control of contracts for Information Technology related services and hardware. Must be well versed in all aspects of procurement including drafting RFPs, proposal evaluation, cost and price analysis, negotiations, and preparation of contract modification. Procurement and Property Management Division.

DD8712. OFFICE SERVICES POSITION – Requires an AAS degree or equivalent related experience. A working knowledge of personal computers and exposure to computerized business systems are required as well as knowledge of excel, Word and accounts payable processing. Fiscal Services Division.

the Bulletin

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