BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

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T. D. Lee

Boundless Freedom or, The Big Bang

Zhangzi

Praise the bird that's named Peng,
Whose body extended several thousand miles long.
When Peng flew, glorious to behold,
His wings were the clouds in the sky,
And all heaven rode on his back,
Nothing could contain him.

(translated and illustrated by T.D. Lee)

Coming Up

On Tuesday, January 11, Cheryl Kurash will present "Learning to Meditate," from noon to 1 p.m. in Berkner Hall.

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On Wednesday, January 12, at noon in Berkner Hall, the "noon concert" will be given by David Bouchier, essayist and witty commentator on life on Long Island. Bouchier will take as his topic "A Short History of the 21st Century."

Project Management Training On-Site

In January and February, the Office of Management Services will hold an intense two and one-half day training course to develop or enhance Project Management skills.

Designed for new or current project managers, team members or individual contributors, the course has received excellent evaluations from previous participants. It will be held January 19-21, from 8:30 a.m. to 12:30 p.m. on the 19th; from 8:30 a.m. to 5 p.m. on the 20th and 21st. It will also be held February 15-17.

Participants will share in action learning, individual team experiences, and a mini-simulation of a project on which they practice skills and get immediate feedback. Sample topics include: project management language; behaviors of effective project leaders and teams; a four-step common sense methodology; and controlling costs against budgets. To register or for information contact Cyrena Condemi, Ext. 2634, or oms@bnl.gov.

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, December 27, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. There will be a meeting for shift workers at 3 p.m. at the union office. The agenda includes regular business, committee reports and the president's report.

Omnipoint Demo 12/20

Omnipoint Communications will be in Berkner Hall on Monday, December 20, 10 a.m.-2 p.m., with special rates for BNLers buying digital PCS wireless services on Omnipoint's GSM network.

Service plans include free caller ID, voice mail, FOX News headlines, and more. Monthly plans range from $15.99 with free phone to $29.99 for 250 free minutes, with unlimited weekend calling for the year of the contract. For more information, call Richard Gall at (631) 343-5900.

Quest Bills Go to OMC

On November 1, the Occupational Medicine Clinic (OMC), began using Quest Laboratory, which erroneously sent bills to employees who have had their lab work processed through OMC. If you have received one of these bills, do not pay it. Instead, forward the bill to John Heinrichs, Bldg. 490.

Arrivals & Departures

Arrivals

Stephen L. Crivello ..... C-A
Mary A. Ostensen ..... C-A

Departures

Juanita C. Beatty ..... Admin. Support
Wayne Goldenberg ..... DAS
Marvin Justice ..... Physics

Portrait of the Artist

T.D. Lee: Physicist, Painter, Poet

Roger Stoutenburgh

For T. D. Lee, the boundless freedom of the great bird Peng, whose outspread wings are the clouds in the sky (see page one), symbolizes also the Big Bang, which most physicists believe was the origin of the boundless freedom of matter that spread out into space and eventually formed the universe.

Retaining the strength and simplicity of the 4th-century B.C. poem by Chinese philosopher Zhangzi, who described Peng, Lee created an English translation. Then, Lee was inspired to express Zhangzi's vision in another art form, a "glorious to behold" watercolor painting of blue, white, gold and dawn colors, which the Bulletin cover version in blue can only imply.

Nobel Prize winner Lee, who is a professor of physics at Columbia University and Director of RIKEN BNL Research Center, first presented this painting to the BNL community as a slide at the beginning of his talk on "The Challenge of Physics," at the symposium entitled "The Frontiers of Physics in the RHIC Era." The symposium was part of the October 4 dedication of BNL's Relativistic Heavy Ion Collider (RHIC). A major RHIC physics goal is to recreate in laboratory conditions the state of matter existing at the dawn of time, just after the Big Bang.

— Liz Seubert

United Way for Millennium Magic

For the past three weeks, BNL employees have been "Making Millennium Magic the United Way" by donating more than $104,000 to Long Island's United Way agencies. The following have won prizes for making early donations:

$500	Louis Pergola
$100	Paul Bezler, Anthony Lo Monte, Nancy Manning
$50	John Scheblein, Donald Lynch
$25	Lois Marascia, Barbara Cox

Together with purchases made at this week's holiday auction and matching donations for volunteer time at food pantries and other agencies, employee's financial contributions have come within reach of this year's goal of $110,000. Your pledge made today or until Wednesday, December 22, could be the one that brings the total over the top. For more information contact this year's Fund Drive Chair Patti Bender, Ext. 3145, bender@bnl.gov, or Co-Chair Beth Blevins, Ext. 5530, blevins1@bnl.gov.

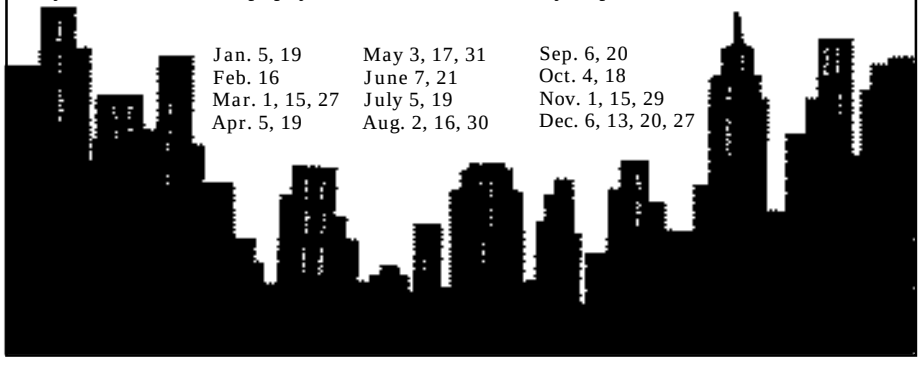
2000 New York City Train Trips

Discounted group trips to New York City via the Long Island Railroad (LIRR) are arranged by the Brookhaven Tour Group and Patchogue-Medford Library.

• **Saturday trips** — Third Saturday of each month from March to December. For departure times and ticket prices, call the Patchogue-Medford Library's AV Office, 654-4700, Ext. 20. A trip will go tomorrow, Dec. 18, for $7 roundtrip fare.

• **Wednesday trips** — Usually: first, third, and fifth Wednesdays of each month, leaving from Patchogue at 7:56 a.m. The Brookhaven Tour Group travels to the city together and returns separately at any time that day. The roundtrip cost is $8 per person; $9 or $10 for fewer than 30 people. Children under five ride free. Times and fares may change.

To reserve for Wednesdays, mail a check payable to cash to be received by the day before the trip to Diane Weid, 645 Old Medford Ave., Patchogue, NY 11772. Include your name, phone number and date of the trip. Or, call 475-2394 and leave your name, phone number, number of tickets needed, date of trip, and where you will board the train if not at Patchogue. Phone reservations must be paid in cash on the morning of the trip. Cancellations must be made before 9 p.m. the evening before. Emergency cancellations can be made by calling before 7:30 a.m. on the morning of the trip, but they are accepted only if the group will still have a minimum of 30 people. If you reserve by phone and do not cancel, then if you do not show up, payment is due. Wednesday trip dates are:



Jan. 5, 19	May 3, 17, 31	Sep. 6, 20
Feb. 16	June 7, 21	Oct. 4, 18
Mar. 1, 15, 27	July 5, 19	Nov. 1, 15, 29
Apr. 5, 19	Aug. 2, 16, 30	Dec. 6, 13, 20, 27

Weekly Calendar Now On Line Only

As of this Monday, December 20, BNL's Weekly Calendar, which lists the upcoming scientific and technical lectures, will only be available on the Web, at www.pubaf.bnl.gov/calendar.

To help readers to remember to view, print out and post a paper copy of each week's calendar after it has been published electronically, a listserv has been established.

To subscribe, send an e-mail message to listproc@bnl.gov stating: subscribe weekly-calendar-l your name. For instance, if your name is John Smith, then your message would read: subscribe weekly-calendar-l John Smith. Note that the character after the hyphenated words weekly-calendar is a lower case l, not the number one.

When notified of a new calendar, subscribers would then go to the calendar's Web site and use Adobe Acrobat Reader to view the calendar in portable document format (PDF) form.

Book Fair Today

Today, Friday, December 17, solve last-minute holiday buying at the BERA book fair in Berkner Hall. *The New York Times* best-sellers, children's books, cookbooks, and more will be sold at discount prices, 10 a.m.-3 p.m.

Discover, Mastercard and Visa charge cards will be accepted.

C++ Training

The Information Technology Division (ITD) has scheduled a class on C++ for C programmers. The five-day introductory level, hands-on class will meet from Monday, January 10, to Friday, January 14, 9 a.m.-4 p.m.

The fee of $931 per student includes all course material. To register, submit an ILR to Pam Mansfield, Bldg. 515, by next Tuesday, December 21. For more information, see the ITD training page at www.ccd.bnl.gov/bnl/training, or e-mail pam@bnl.gov.

Shape Up

Start the New Year in new and better shape! The following exercise classes are offered at the Lab, sponsored by the Health Promotion Program of the Occupational Medicine Division. Employees and spouses may sign up for one or both days of classes offered, but registration is required. For more information, contact Health Promotion Specialist Mary Wood, Ext. 5923 or woods2@bnl.gov.

Water Aerobics

Eight weeks of in-water stretching and aerobics classes will start at the Lab pool, Bldg. 478, 5:20-6:10 p.m., Tuesdays and Thursdays. The first classes will be on January 4 & 6. Classes are free to those with a season pool pass; nonmembers must pay the pool fee of $2 a session.

Cardio Kickboxing

Beginning on January 4 & 6, cardio kickboxing classes will be held on Mondays and Thursdays, noon-1p.m., in the North Ballroom, Brookhaven Center. Evening classes will also be offered on Tuesdays in the gym and Thursdays in the Brookhaven Center North Ballroom, 5:15-6:15 p.m. Each class is $5 per participant, payable at the class.

William Floyd's Tara McManus Wins BNL's 'Discovery' Art Prize

The outstanding creativity of Tara McManus's sculpture entitled "Self Portrait," (see top of composite photo at right) won her BNL's 1999 High School Seniors' Art Prize.

The prize of a $500 U.S. Savings Bond was awarded for the best interpretation of the theme of "Discovery." On behalf of BSA, the BNL Art Society chose McManus's work from the approximately 300 art pieces shown at the 1999 High School Art Show sponsored by the South Bay Art Association (SBAA) in Bellport. McManus attends William Floyd High School where she is taught art by Susan Hersh.

After the SBAA show, McManus and other students were invited to display their work in an exhibit at BNL, which ran November 22-24 at Berkner Hall.

As McManus explained when she visited BNL, the Monarch butterflies emerging like creative thoughts from the sculpted head inside the decorated and curtained box of her "self" express her passion for travel and adventure. The wings she wears on her coat symbolize for her the spirit of the butterflies' freedom.

Among the other students who exhibited their art was Heidi Ortiz (right, center) of Longwood High School, and many other students from William Floyd, Brentwood High School and Sayville High School.

Said Robert Chrien, BNL Art Society President, "Every year, the work submitted to the Students' show displays wonderful talent and ability, and we were very pleased to be able to present this prize for work suited to our "Discovery" theme. We look forward to this being an annual event and to seeing what next year's students will create around this topic."

Tara McManus (top, center), who is taught art at William Floyd High School by Susan Hersh, is photographed at BNL showing the front and two sides of her prize-winning 'Self Portrait' sculpture.

Heidi Ortiz (center), a student of art teacher Judith Tully at Longwood High School, is shown with her oil painting of tulips in a vase, one of the pictures shown at BNL by local high-school students.

Roger Stoutenburgh

Dosimetry badges will be exchanged on Thursday, December 30. Therefore, please place your badge in its assigned rack space before leaving work that day.

Holiday Notes

In observance of the Christmas Day and New Year's Day holidays, the Lab will be closed on the afternoon of Thursday, 12/23, and on Friday, 12/24. It will also be closed on Friday, 12/31. Therefore, there will be no Bulletins on the Fridays of 12/24 and 31.

- **Cafeteria**: will be open 7:30 a.m.-1 p.m., Thursday, 12/23. Weekend service, 7:30 a.m.-2 p.m. will be available Friday, 12/24, and Sunday, 12/26, and Friday, 12/31 through Sunday, 1/2. The cafeteria will be closed Saturday, 12/25.
- **Brookhaven Center**: closed Thursday, 12/23 through Saturday, 12/25, open on Sunday, 12/26, 5-9 p.m. Closed Friday, 12/31 and Saturday, 1/1; open Sunday, 1/2, 5-9 p.m.
- **Gym & Pool**: closed after lunch time swimming Thursday, 12/23, and closed all day 12/24-26. Closed Friday-Saturday, 12/31-1/1, and reopened Monday, 12/27, and Monday, 1/3. The new three-month pool season will begin on Monday, 1/ 3.
- **Recreation Building**: closed from Thursday, 12/23, to Monday, 1/3, unless previous commitments have been scheduled.

Classified Advertisements

LABORAT0RY RECRUITMENT - Opportunities for Laboratory Employees

DD7023. SECRETARIAL POSITION - Requires an AAS in secretarial science or equivalent experience and good secretarial/organizational/communication skills. Must be proficient in MS Office products. Knowledge of Laboratory policies a plus. Will be responsible for all aspects of secretarial assignments such as coordination of Laboratory Field Work, proposal submission, word processing, report and correspondence preparation, travel arrangements, filing, record management and telephone coverage. Budget Office.

OPEN RECRUITMENT - Opportunities for Laboratory Employees and Outside Candidates.

MK8795. PHYSICIST - Requires a Ph.D. and several years' experience in the field of high energy or relativistic heavy ion physics and a thorough knowledge of both off-line and on-line software at the infrastructure and application software level for modern physics detectors. Excellent communication skills and the ability to lead a large collaborative software effort focused on off-line and on-line software for the STAR Project also required. Will be responsible for the ongoing development, implementation and operation of the off-line and on-line computing systems and for leading a large collaborative software effort. Will function as the Computing and Software Leader for the STAR Experiment at RHIC. Under the direction of T. Hallman. Physics Department.

MK7975. ASSISTANT SCIENTIST - To work within the PHOBOS Heavy Ion Research Group. Will be responsible to contribute and eventually take responsibility for the day-to-day operation and maintenance of the PHOBOS experimental equipment. Requires a Ph.D. Under the direction of M. Baker. Chemistry Department.

MK8553. ASSISTANT SCIENTIST - Requires a Ph.D. in cell biology or closely related field; knowledge of DNA damage, recognition or repair in mammalian cells desirable. Will develop a research program to identify mechanisms by which mammalian cells detect and respond to DNA damage including damage caused by ionizing radiation. Will collaborate with Department staff to identify the macromolecular components, including protein complexes, that detect DNA damage and that constitute signal transduction pathways leading to control of cell cycle progression and the repair of DNA damage, and to determine the structure of these components and complexes at atomic resolution. Under the direction of C. Anderson. Biology Department.

MK7976. POSTDOCTORAL RESEARCH ASSOCIATE - Requires a Ph.D. and a strong background in laser-based chemical dynamics, surface (photo) chemistry or surface scattering. Experience with REMPI techniques, time-of-flight mass spectrometry or ion imaging is desirable. Research will involve chemical dynamics involving thermal and photoinduced reactions of adsorbates on metal and metal-oxide surfaces. Current and future projects include fundamental studies of photodesorption, UV and IR-induced recombination and association reactions, surface reaction kinetics and molecular beam scattering. Under the direction of M. White. Chemistry Department.

MK7972. POSTDOCTORAL RESEARCH ASSOCIATE - Requires a Ph.D. in molecular pharmacology or medicinal chemistry. Will actively participate in the development of fast-scan cyclic voltametric method and microdialysis technique of neurotransmitter detection in freely moving rats and genetically altered mice. Will assist in designing methodology and experimental protocols for simultaneous use of miro PET and microdialysis and will develop behavioral assays, including CPP, self-administration, reinstatement and drug discrimination. Under the direction of M. Gerasimov. Chemistry Department.

MK8575. POSTDOCTORAL RESEARCH ASSOCIATE - Requires a Ph.D. in biology or related field or a field that has a program with a strong component of biology research in its curriculum and a strong research background in molecular and cellular biology. Will be involved in research program which has as its goals to design and execute experiments that help understand the biological basis for the phenomena

(continued on page 4)

Carols at Noon 12/21

The BNL Choral Group will sing carols at the cafeteria's holiday-treat luncheon on Tuesday, December 21. Mulled cider, butter cookies and a delicious Yule log will be on the menu.

Roger Stoutenburgh

Would you like Santa Claus (who may look much like Lieutenant Chuck LaSalla) and his Elf (you might think he's Firefighter Frank Palmeri Jr.) to dash through the snow on a neat open sleigh (Fire Engine #2) to visit your area of the Lab site during their 9-11 a.m. rounds on the morning of Thursday, December 23?

If so, call the North Pole, Ext. 2351, by Monday, December 20, for a reservation. Last year, with jingle bells and "Ho Ho Hos," Santa and his Elf brought the holiday spirit to 24 Lab buildings.

Season's Greetings

Winter

photos by Roger Stoutenburgh

Classified Ads (cont'd)

associated with irradiation of small vertebrates with parallel arrays of synchrotron-generated x-ray microbeams, namely the sparing of normal tissues and the tumorocidal effects from unidirectional irradiation. Under the direction of A. Dilmanian. Medical Department.

MK7946. POSTDOCTORAL RESEARCH ASSOCIATE - Requires a Ph.D. in organic chemistry or related field, training/experience in environmental organic chemistry and experience in synthetic organic chemistry and mass spectrometry. Research involves the broad area of environmental organic chemistry and organic geochemistry including: geochemical transformations of sedimentary sulfur and its role in influencing the amount and nature of organic matter preserved in sediments and studies of metal-organic matter interaction in soils and sediments. Under the direction of A. Vairavamurthy. Department of Applied Science.

MK7642. POSTDOCTORAL RESEARCH ASSOCIATE - (reposting) Requires a Ph.D., several years' postdoctoral experience desirable and extensive abilities in experimental techniques used in nuclear and particle physics experiments. Should have outstanding ability, creativity and initiative and have interests in the area of the intersection between nuclear and particle physics. Experience with drift chamber systems, germanium detectors, trigger electronics and data acquisition is valuable. The research program will involve studies of nuclei containing one or more strange quarks primarily conducted at the Alternating Gradient Synchrotron and the physics of polarized pp scattering at RHIC. Under the direction of M. May. Physics Department.

NS8515. MECHANICAL ENGINEERING POSITION - Requires a bachelor's degree in mechanical engineering and significant experience in mechanical design and related manufacturing techniques. A strong background in stress analysis and thermal analysis is required as is CAD/CAE computer skills with ANSYS, Mechanics, AutoCad, Excel, MSProject or equivalent programs. Familiarity with systems and components used with particle accelerators such as vacuum systems, high voltage/high current equipment, rf, beam instrumentation and/or magnets is desirable. The successful candidate will help design, fabricate, assemble and test mechanical equipment and components used in particle accelerators and their associated experimental apparatus. Collider-Accelerator Department.

NS8457. ENGINEERING POSITION - Requires a BS in biology, chemistry or environmental/health science, computer skills and familiarity with databases and information systems. Responsibilities include maintaining chemical hazard information systems, managing the Chemical management System, managing and disseminating the Material Safety Data Sheets. In addition,will be responsible for maintaining the Laboratory's Hazardous Materials Control Program, preparing the annual chemical inventory reports for hazardous materials and providing information to BNL employees for worker hazard communication, community right-to-know, environmental protection, emergency responses, transportation and hazardous wastes. Supports Industrial Hygiene Group activities as assigned. Safety & Health Services Division.

NS8512. PROGRAMMER/ANALYST POSITION - Requires a BS in computer science, physics, or related field with experience in user interface application software development. Experience in a scientific environment is preferable. Position requires creative individual with good problem-solving and communication skills to design and develop user interface applications for the accelerator controls environment. C++, X-windows, and UNIX experience desirable. Java experience a plus. Collider-Accelerator Department.

NS8520. PROGRAMMER/ANALYST POSITION - Requires a BS or equivalent experience, demonstrated knowledge of UNIX web server administration, JavaScript, HTML, Per/cgi, active page development, web/database integration, and web and document processing tools. Experience with C++ and Java a plus. Will be responsible for web-based document management, web server administration, and support for operations. Collider-Accelerator Department.

DD8229. MEDICAL ASSOCIATE POSITION - (term appointment) Requires a BS in a biological science or equivalent experience. Knowledge of pharmacology preferred as is experience handling rodents. Under supervision, will examine the brain distribution of PET imaging agents directed against brain cannabinoid and dopamine receptors and perform biochemical and neurochemical assays to determine the functional roles played by these receptors in the brain. Experiments will involve behavioral experiments on rats and mice, in vivo binding studies and pharmacological studies on isolated tissue preparations and membrane preparations. Medical Department.

DD8517. ELECTRONIC TECHNICIAN POSITION - Requires a high school diploma or equivalent capabilities plus several years relevant work in electronics. Under close supervision, performs semi-routine technical support functions typically involved with the fabrication, assembly, maintenance and operation of electronic equipment. Work assignments are performed in accordance with general instructions and established procedures. Duties require a limited knowledge of practical principles of electronics. Collider-Accelerator Department.

DD8518. ELECTRONIC TECHNICIAN POSITION - Requires an AAS in electronic technology or equivalent and relevant work experience as well as a working knowledge and experience with digital electronics, basic test equipment, printed circuit layout from schematics, elementary electronic design, and basic mechanical fabrication techniques. Familiarity with AutoCAD LT would be a plus. Under the general supervision of a senior group member, will perform a variety of evaluations, fabrication, testing, troubleshooting, modification and maintenance operations on electronic circuits. Collider-Accelerator Department.

DD8516. DESIGN POSITION - Requires the ability to perform mechanical design functions, with a working knowledge of engineering fundamentals, machine design, shop practices, welding and vacuum systems. Must be familiar with ANSI Y14.5 standard, window NT/95 environment and AutoCAD REL14 and mechanical Desktop. Will be responsible for design projects from conceptual layouts to detailed working drawings. Collider-Accelerator Department.

DD8552. BIOLOGY ASSOCIATE POSITION - (term appointment) Requires a bachelor's degree in biology, biochemistry, or molecular biology and demonstrated postgraduate laboratory experience with molecular techniques and automated DNA sequencing. Knowledge of current molecular methods and familiarity with bio-informatic computer tools is essential. The goal of this work is to identify genes that positively affect cotton fiber properties and the immediate work will involve isolating, characterizing, and manipulating sequences of cotton fiber genes. Will be expected to carry out independent literature surveys, possess the ability to critically evaluate experimental results, and work in a semi-independent manner. Additional duties include laboratory maintenance and ordering supplies. Biology Department.