



ON TARGET

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY • A DEPARTMENT OF ENERGY FACILITY

L. Morand wins

2003 SURA Thesis Prize

Director highlights

*Lab's Science Education program,
need for volunteers*

J. Stroud becomes

Lab HR&S director

User/International

*Liaison Office assists JLab's user
community*

FEL achieves 10 kilowatts

Jefferson Lab's upgraded laser reaches Navy design goal on July 21

*by Kandice Carter
JLab science writer*

Thanks to an upgrade process spanning more than three years, the Free-Electron Laser (FEL) achieved 10 kilowatts of infrared laser light July 21, making the most powerful tunable laser in the world even more powerful.

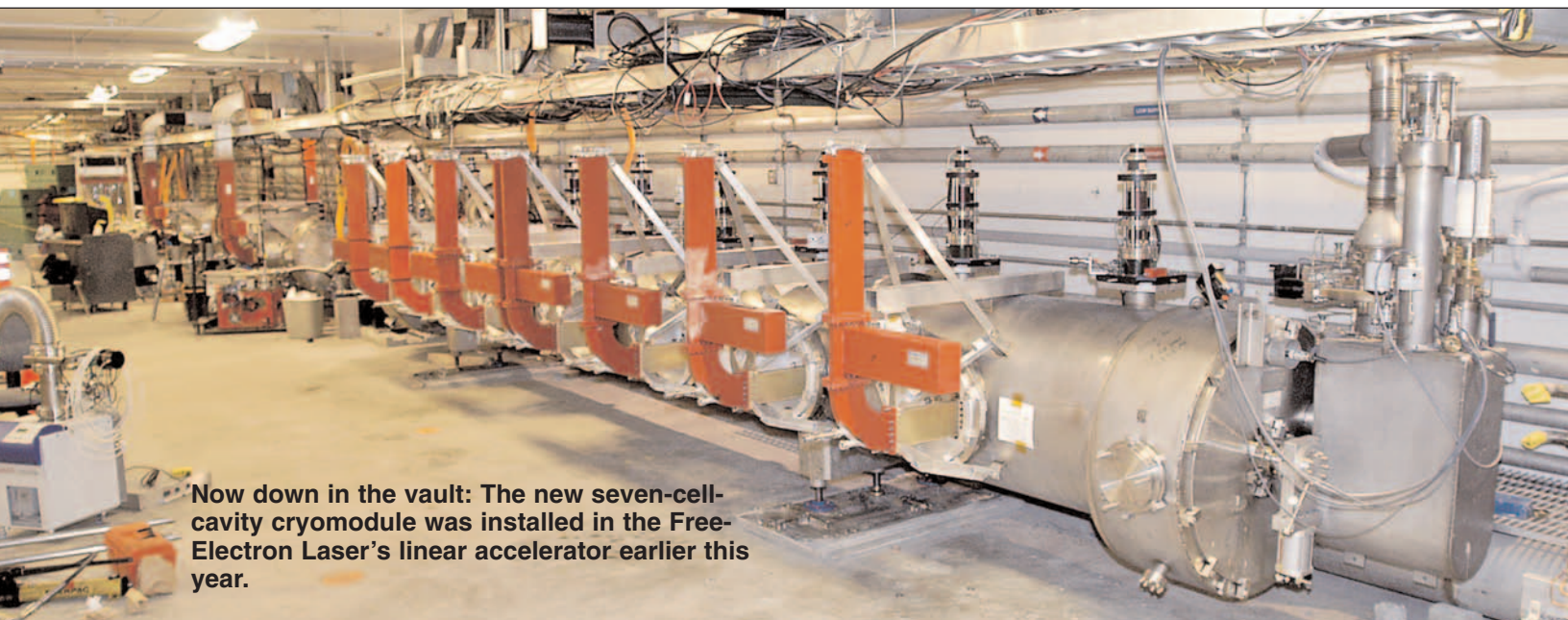
The FEL program began as a One-Kilowatt Infrared Demonstration FEL funded by the Department of Defense's Office of Naval Research (ONR). The original machine made its mark as the world's brightest high average power laser by delivering 2.1 kilowatts (kW) of infrared light, more than twice it was initially designed to achieve. The One-Kilowatt Infrared Demonstration FEL operated for two and a half years and broke all existing power records for tunable high-average power lasers. It was used for a variety of applications

by researchers representing more than 30 different groups, including the Navy, NASA, universities and industry before it was taken offline in November 2001 for the upgrade to 10 kW.

"Whenever a technology gains a factor of ten improvement in performance, the achievement opens the door to many new applications, some foreseen, and some are simply very pleasant surprises," said Christoph Leemann, Jefferson Lab Director. "We look forward to operating this exciting new machine and carrying out the many experiments planned for it."

During the upgrade process, FEL staff installed new optics, more accelerating components, new power supplies in the injector and a new wiggler that

Continued on page 6



Now down in the vault: The new seven-cell-cavity cryomodule was installed in the Free-Electron Laser's linear accelerator earlier this year.

2003 SURA Thesis Prize

*Ludyvine Morand
wins award for
work to
determine low
range of GPDs*

Ludyvine Morand is this year's winner of the Southeastern Universities Research Association (SURA) Thesis Prize, an annual award given by SURA in recognition of the vital role played by graduate students in the scientific mission of Jefferson Lab. Established in 1999, the prize is awarded for the best graduate student thesis and includes a stipend of \$1000 and a commemorative wall plaque.

The award was presented June 15 during the annual Users Group meeting. A reading committee appointed by the JLab Users Group Board of Directors selected Morand's thesis, Measurement of Electroproduction of ω (omega) Mesons at Large Four-Momentum Transfer (English translation), from nine submissions. The theses were graded in four major areas: quality of the written dissertation, the student's contribution to the research, the work's impact on the field of physics, and service (how the work benefits the Lab/other experiments).

"SURA is pleased with the level of competition that its annual Thesis Prize attracts, and this year is no exception. Ludyvine Morand's thesis is an excellent example of the high quality research that is being carried out at Jefferson Lab, and I congratulate her on this very significant accomplishment," says SURA President Jerry Draayer.

Morand successfully defended her thesis to earn her Ph.D. in hadronic physics from Paris University in December of last year. Her thesis was based on data from Hall B's e1-6 experimental run that took data from October 2001 to January 2002. The experiment was designed to test under which conditions the formalism of Generalized Parton Distributions, or GPDs, is valid.

"The experiment is investigating the dynamics of the quarks inside the nucleon, the position of the quarks and also their momentum," Morand explains. GPDs are mathematical functions that allow physicists to describe the internal structure of the nucleon (protons and neutrons) at high momentum transfer. However, it's not clear how high this momentum transfer has to be for a description of the reaction

in terms of GPDs to be valid. In other words, there's a cut-off, or limit, below which this description is no longer applicable; Morand's work was essentially aimed at finding that lower limit. In the experiment, a beam of electrons was sent into a hydrogen target. Morand was looking for events in which a single electron interacts with one of the three quarks of the proton (the hydrogen nucleus is made up of one proton). This interaction can produce new particles.

Morand was interested in the production of a particle called an ω meson, which is made up of two quarks.

She found that ω mesons were produced at a rate five times higher than predicted by the handbag diagram mechanism. Hence, this mechanism alone did not account for all of the ω mesons produced. This showed that the ~ 6 GeV beam energy used in the experiment is below the lower beam energy limit at which GPDs are most appropriate for describing the internal structure of nucleons.

"On one hand, this is bad news, because we are not in the right domain yet, and at this stage, we can't go further in the structure of the nucleon with this method. But on the other hand, it tells you that something else is happening. So there is always something to learn from an experiment, even if it's not what you wanted," Morand notes.

Morand is now looking for a permanent position where she can use her knowledge of nuclear physics in applied research. "I'm looking for something related to nuclear physics, but for an applied goal. Some people are using small electron accelerators to produce photons to inspect trucks for customs agencies, and others are studying the safety of nuclear power plants. These are the kinds of applications I'm interested in," she says.

Morand currently lives in Villejust, France, with her husband, Christophe Jutier, another nuclear physicist who received his Ph.D. at Old Dominion University and whom she met during her first visit to Jefferson Lab while on an internship.



Dear Colleagues:

As the new school year begins, I would like to highlight the innovative and effective Science Education program we have at Jefferson Lab. Our education program has earned recognition both regionally and nationally and has often been cited as a benchmark program by the Department of Energy. While I am speaking predominantly of BEAMS, JLab's Becoming Enthusiastic About Math and Science program, the Lab supports a range of science education programs and activities, including the High School Summer Honors Program (HSSHP), the Science Undergraduate Laboratory Internship program (SULI), the Pre-Service Teacher internship program (PST), and the Teacher Academy in Physical Science program (TAPS). Additionally, thousands of grade-, middle- and high-school students and their teachers take part in Physics Fests here each year and people of all ages attend the Fall and Spring Science Series presentations that feature speakers from various scientific and technical disciplines.

The Lab's team of Science Education specialists does a very fine job of organizing and running these programs. However, it takes a steady stream of dedicated volunteers to make the programs successful. Over the years, hundreds of JLab employees and users have regularly volunteered their time to meet with our BEAMS students or to lead individual activities in the science education classrooms. Still others have judged science fairs; mentored and provided guidance to high school, college and teacher participants in completing their summer projects; and officiated at the annual Science Bowls hosted by the Lab. The combined efforts of our volunteers and our education professionals provide invaluable benefits to the students and teachers in our community.

BEAMS, which will begin its 14th season at JLab in September, brings entire classrooms of 6th, 7th and 8th graders and their teachers to the Lab for a variety of innovative, hands-on science and math enrichment activities and demonstrations. The BEAMS program has had a mea-

asurable impact on students, raising their Virginia Standards of Learning (SOL) scores in math and science, as compared to other schools with similar student populations. With BEAMS, we reach out to young people at an age when many lose interest in math and science and build their confidence in pursuing these subjects in school.

With our summer enrichment programs for high school and college students and k-12 teachers, we are helping to educate the next generation of scientists, engineers and technicians. To emphasize this important role, Secretary of Energy Spencer Abraham recently announced that the Department of Energy, with support from the national laboratories, is launching an initiative to promote science literacy and help develop the next generation of scientists and engineers. The initiative is designed to enhance the training of America's mathematics and science teachers; foster students' interest in science and math, especially in the critical middle school years; and encourage young people and prospective teachers to pursue careers in math, science or high technology. JLab's Science Education program already meets many of the guidelines set forth in the new initiative, and we will continue to strengthen our program in support of DOE's endeavors.

I invite each of you — scientist, engineer, technician and support staff — to become familiar with our science education programs, and trust that you will find a way to share your enthusiasm for science with students and teachers. This is a laboratory that has built a great science education tradition based on enthusiastic and involved volunteers. There is a continuing need for volunteers, especially to assist with BEAMS classroom activities, and to visit students at their schools. This is time well spent — helping not only students and teachers, but also raising awareness of Jefferson Lab's scientific mission in our community.

If you are already involved as a volunteer, I thank you and ask for your continued support. If you have not yet given time to these programs, please consider doing so.



Christoph Leemann
Jefferson Lab Director

*Lab's science
education
successes based
on volunteers*

**From
the
Director**

Welcome aboard!

Jim Stroud becomes JLab's new HR&S director

by Judi Tull

Jim Stroud is ready to put his 20-plus years of Human Resources experience to work at Jefferson Lab — making a positive difference in people's lives.

Human Resources and Services Director Jim Stroud started out in banking, after graduating from North Carolina Wesleyan College with a bachelor's degree in economics. As he participated in a management-training program with a regional bank in his native Rocky Mount, N.C., area, he rotated through various departments and found his true calling in what was then called Personnel.

"I really enjoy working with people," he said recently. "No two are alike. It never gets boring and it never gets old. I'm constantly drawing on old skills and learning new skills as I explore different approaches to issues."

Stroud first came to Hampton Roads in 1984 to work at the Children's Hospital of the King's Daughters as associate director of Human Resources, a job that was well suited to the range of skills he had honed as director of Administration for the city of Tarboro, North Carolina. The hospital was a perfect fit for Stroud since he always had a yearning to be involved in health care in some way; at one time he had even considered a career in medicine.

During the 11 years he was at CHKD, he automated all the hospital's Human Resources functions and rose to the position of director of the department, which included all human resource functions, occupational health and medicine, safety and security.

In 1995, he joined Sentara in order to gain experience in a more complex setting where emerging trends in human resources, such as new compensation strategies, and positions being defined by roles rather than titles, were being used. In that position, he supported all of Sentara's southside hospitals and served as a human resources consultant on major merger/acquisition projects.

By 2000, the HR professional had been in acute care hospital settings for



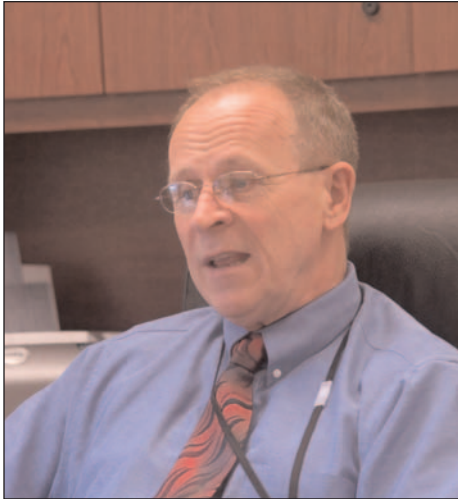
more than 15 years and experienced the impact of managed care on inpatient hospital care. He was offered a position with Anthem Alliance on a Department of Defense contract that administered access to health care to dependents of active duty military as well as retired military and their family members in Virginia and North Carolina. "I saw it as a chance to gain insight into an aspect of health care that I had only experienced from the other side of the equation," he said.

Stroud knew that one of the principles of managed care companies was gaining the largest segment of market share as quickly as possible, however, he was stunned nonetheless when, on his first day of work, he was told that Alliance was being acquired by another company. And six months later it happened again. Suddenly, he was working for Humana, Inc.

"It was stimulating and interesting work," he recalled, "but I kept asking myself, 'When do we get to the real human resources work instead of focusing on transition issues?'"

When DOD redrew the contract regions, Humana, Inc. no longer serviced Virginia and North Carolina, and he was offered a transfer to the company's corporate headquarters in Louisville, Kentucky. He sold his house and thought he was on his way to Louisville.

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But one day while surfing the web, he came upon JLab's HR&S job opening. He e-mailed his resume and set out for one of the many dog shows he attends with his prize-winning Tibetan Spaniels. While he was there, Deputy Associate Director for Administration Mark Waite called to ask him to come in for an interview.

"I drove home from the dog show Sunday night, got in at 4 a.m. and was at the interview at 1 p.m. Monday," he remembered with a laugh. Not only did he get the job at the Lab, but also a house he'd admired for years in Willoughby, on the beach and right next to Harrison's Pier, came available. It was as if fate had intervened.

As JLab's new director of Human Resources and Services, Stroud is responsible for the strategic planning, budgeting, policy development, assessment and supervision of the department, and through effective leadership, planning and implementation he is responsible for the range of human resource and medical services provided at the Lab.

So far, there haven't been many surprises in his new job. He compares working with the Lab's physicists to working with the surgeons and anesthesiologists he knew during his time in medical care. "The nature of the work here creates something of a different culture," he noted, "but these

are people with similarly advanced educations, intense focus on their work and similar needs for appropriate workplace balance."

Stroud has pursued graduate level coursework at the University of North Carolina, Chapel Hill and is completing requirements for an advanced degree in Industrial Relations from Norfolk State University. He also holds professional certification by the Society for Human Resource Management. He's looking forward to ensuring that the Lab is making the best and most effective use of all its resources, and he has a particular interest in elevating wellness and safety awareness. "The payoff there is tenfold in terms of time and resources," he said.

He has a personal philosophy that he brings to dealing with human resource issues and the people they affect. "I believe that everything happens for a reason," he said. "I'm a person who usually acts on instinct, and it has rarely proven me wrong. I believe that we can all look back on major life changes and see that some good came to us from them. People have often come back to me and validated that through previous adversity had come positive change. That's gratifying."

Stroud has two adult children who live in Vermont.

FEL achieves 10 kilowatts...

*Most powerful
tunable laser in
world gets even
better*

Continued from page 1

enables the accelerated electron beam to produce laser light. These improvements increased the linear accelerator energy 300 percent (from 40 to 160 million electron volts), doubled the machine's achievable current and made it possible for the optics to take a ten-fold increase in power.

"Once the machine came back on line after the Upgrade, the FEL team worked under an intense spotlight for more than a year to bring the upgraded FEL to life," said JLab FEL program manager, Fred Dylla.

The machine first lased at 10 kW with a 30 percent duty factor June 17, exactly one year after the improved machine had achieved first light. This first demonstration of 10 kW was accomplished in 5 millisecond pulses of laser light at an infrared wavelength of 6 microns. For the 10 kW milestone to count, however, the machine needed to produce continuous wave beam, not pulsed.

On July 21, FEL staff achieved 10kW of infrared laser light at 6 microns by operating the machine with macropulses one second in length. These macropulses delivered continuous wave beam in one-second intervals, an achievement that satisfied the 10 kW parameters set by the Navy. This method allowed the machine to deliver infrared light at a power exceeding 10 kW for periods of hours, and by the end of the day, FEL staff had coaxed 10.6 kW of infrared laser light out of the machine.

"It has been a pleasure to observe the commissioning team, lead by Steve Benson and Dave Douglas, as they skillfully guided the FEL past the 10 kilowatt milestone. Now we're all looking forward to running this unique machine for our colleagues who have been waiting patiently for us to deliver light," Dylla said.

The Free-Electron Laser Upgrade Project is funded by the Department of Defense's Office of Naval Research (ONR), the Air Force Research Laboratory, the U.S. Army Night Vision Laboratory and the Joint

Technology Office with the cooperation of DOE's Office of Science. The project includes plans to improve the machine's ability to produce infrared (Navy), ultraviolet (Air Force) and terahertz (Army) light. The FEL plans to produce experiment-quality terahertz light by late summer, and the ultraviolet portion of the upgrade is slated for completion in the spring of 2005.

"No other laser can provide the same benefits to manufacturing, medical research, biology, and basic physics," said ONR FEL program manager, Quentin Saulter. "The Navy has chosen the FEL because it has multi-mission capabilities. Its unique, high-power and 24-hour capabilities are ideal for Department of Defense, industrial, and scientific applications." Quentin Saulter oversees the Navy's infrared FEL development effort in cooperation with the Naval Sea Systems Command Directed Energy and Electric Weapons Office, headed by Captain Roger McGinnis.

ONR is also funding the operation and optimization of the 10 kW FEL and has several experiments slated to begin in early fall. A laser materials damage study will be co-funded with the Office of the Secretary of Defense High Energy Laser Joint Technology Office. In another project, scientists from the Naval Research Lab will study laser propagation through the atmosphere, with an eye to new laser-based shipboard defense strategies. Other experiments planned for the first year of operation include the study of hydrogen defects in silicon and pulsed laser deposition of materials by College of William and Mary researchers and photochemistry and photobiology investigations by researchers from the University of Virginia and Princeton University.

College of William and Mary scientist Brian Holloway and his colleagues are anxious to get back into the lab to continue fabrication of nanotubes. Researchers are interested in these tiny cylindrical structures because they're 20 times stronger than steel at only a small fraction of the weight. Among

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their many uses, nanotubes could be built into faster computers, light-weight radiation shields for the space shuttle and safer race cars. "The FEL has, literally, the worldwide unique capability to do the experiments we want to do in terms of real-time laser wavelength tunability, wave structure modification and high power. It would take years elsewhere to do what we can do here in weeks to months," he said.

Holloway's group is attempting to identify the necessary ingredients for nanotube production with lasers. "We've found that we can make buckets of nanotubes at the FEL of a very consistent quality in a short time scale. We're making them to learn how and why nanotubes form in laser ablation plasma flow. We're not exactly looking for every detail of this process, but we are trying to get a better understanding about what's critical in their formation," he explained.

The FEL provides beams of laser light that can be tuned to a precise wavelength, and these beams are more powerful than a conventional laser's. Conventional lasers are limited in the wavelength of light they emit by the source of the electrons (such as a gas or crystal) used within the laser. In the FEL, electrons are stripped from their atoms, then whipped up to high energies by a linear accelerator. From there, they are steered into a wiggler, a device that uses an electromagnetic field to shake the electrons, forcing them to release some of their energy in the form of photons. As in a conventional laser, the photons are bounced between two mirrors and then emitted as a coherent beam of light. FEL operators can adjust the wavelength of the laser's emitted light by increasing or decreasing the energies of the electrons in the accelerator or the amount of shaking in the wiggler.



Several Free-Electron Laser group members intently watch the monitors in the FEL Control Center on a recent afternoon. Their efforts for the last several months have been focused on making the 10 kW goal.

The computer screens (inset) show several of the parameters manipulated while tuning the laser, including the electron beam, beam position, and current and power levels.

Welcome to the world of JLab's User/International Liaison Office

Team provides service with a smile to scientific research user community

by Kandice Carter

It's often the first office that users visit when they come to Jefferson Lab and the last they see before they leave. The User/International Liaison Office (U/I LO) is the Lab's first point of contact with most of the hundreds of students, interns and scientists that come to the Lab throughout the year to conduct experiments and do research. Clara Perdue, manager of the U/I LO, and her staff, Sue Ewing and Suzanne Roseberry, have nearly 25 years' combined experience at the Lab; and with the assistance of student interns Krista Mays and RaShana Mims, they offer a full range of support services to the JLab user community.

Clara Perdue points out, "The Lab's users come from across the country and around the world to conduct experiments that can't be carried out anywhere else. Some users reside here for only a few weeks, while others may stay for well over a year. The User/International Liaison Office is here to provide the best possible service for our user community. We strive to be a one-stop shop for our users." That can often include such mundane activities as helping users fill out their paperwork or helping them schedule the training needed for their JLab access badge. It could also entail more generalized support — like providing users with information on how they may apply for a driver's license or a social security number and offering mentoring and recreational opportunities for graduate students and interns.

"We provide a full range of support services for our users. They come in, and may need to see a doctor, or take a test for radiation training or Oxygen Deficiency Hazard certification," says Ewing. The U/I LO assists users with these and other requests, to

make their time at JLab as productive as possible.

And often, the most time-consuming and detail-oriented service the Office provides for JLab's international user community, takes place before a user in this category even sets foot on the JLab campus. That is the U/I LO's expertise in meeting the paperwork requirements for international visitors to obtain their visas to visit or work in the United States. "We handle all of the immigration work, which includes writing petitions for the visas, administering the J-Visa program, and being responsible for documenting the legal status of every foreign national who has access to the site," Perdue explains.

Just learning the immigration procedures is a time-consuming endeavor, and both Ewing and Roseberry are learning to master it. "Users know that they can come to us for help with this paperwork and depend on us to help them out," Roseberry says.

The Office also handles the planning, implementation and follow-up for several other user programs. For instance, Office staff ensures that the Annual Users Group Meeting is planned, coordinated and conducted in an orderly fashion. According to Perdue, "We do everything in terms of preparing for that meeting." Office staff also supports the Program Advisory Committee's (PAC's) biannual meetings, which is critical to the Lab and its experimental program. In addition, the U/I LO team supports the three Users Group Board of Director's meetings held each year. Perdue serves as the secretary/treasurer for the Users Group Board.

All told, the U/I LO interacts with some 2,200 members in its database.

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Of those, nearly half are foreign nationals, and more than 700 onsite users have been through the U/I LO in the last year. User requests keep the Office busy, especially during the peak visiting months of summer.

The U/I LO also has a section dedicated to the needs of JLab's student users. Bob Welsh leads the Student Affairs Office, an early stop for all students involved in research at JLab. This office schedules monthly seminars, arranges summer lectures on detectors, computers and data analysis techniques and organizes recreational activities for students. In addition, Welsh regularly doles out school and career counseling in good measure as part of his responsibilities. Welsh says, "I guess the best way to describe it is

as an ombudsman office for graduate students." Student Affairs also recently added to its services: the Office negotiated an agreement with the College of William and Mary to allow JLab graduate students to take advanced physics courses at the reduced, in-state tuition rate.

All in all, the User/International Liaison Office staff provides a range of important onsite services for clients and strives to give the JLab user community prompt, quality assistance. Ewing says, "We offer our users a variety of services when they walk in the door, and most of them are very grateful and that's very gratifying. We hope that the services we provide enable them to have a valuable scientific experience at Jefferson Lab."



The User/International Liaison Office staff poses for a group photo (back row, from left): student intern RaShana Mims, Suzanne Roseberry, Clara Perdue, student intern Krista Mays, Sue Ewing, and (front row) Bob Welsh.

Milestones for July 2004

Hello

John Hammons, Accelerator Operator,
Accel. Division

Lei Guo, Post Doctoral Fellow,
Physics Div.

Christian Weiss, Hadronic
Phenomenology Scientist, Phy. Div.

Goodbye

George Fleming, Post Doctoral
Fellow, Phy. Div.

Dawn Manning, Education Specialist,
Directorate

Lori Powell, Electronic
Media/Graphics Associate, Phy. Div.

Congratulations

Heather Singleton, Medical Services
occupational health nurse manager,
completed her Master's Degree in

Nursing on July 14, 2004, through the
University of Phoenix online. She
graduated summa cum laude with a
4.0 grade point average. She was
inducted into the Sigma Theta Tau
nursing honor society on June 5, 2004.

Bienvenidos Todos (Welcome All) to JLab's Hispanic Heritage Month activities

Quark Cafe will be the central
locale for JLab's Hispanic Heritage
Month activities, running from Sept.
15 to Oct. 15. Cultural posters will be
on display, ethnic music will play and
Hispanic food items will be featured
on the menu during select lunch times.
To kick the celebration off on Sept.
15, that day's lunch menu will feature
a tapas bar: a variety of side dishes or
small portions of foods that are often
served informally in Hispanic taverns
and restaurants.

One lunch meal each week during
the month-long observance will feature
Hispanic foods. Members of JLab's
Hispanic Heritage Month team will be
on hand to raffle off two piñatas in the
dining area during the Oct. 15
lunchtime.

Jefferson Lab's recently formed
Hispanic Heritage team is planning
and organizing the special celebration.
"Observing ethnic heritage events such
as this help us focus attention on the
cultural diversity that makes this coun-
try — and Jefferson Lab — so strong,"
notes Pat Morton, Human Resources.
"It helps us learn about and develop an
appreciation for the contributions
made in this country by people of
every ethnic heritage."

"Learning about the many cultures
we come from helps to foster pride in
one's own culture and a respect and
appreciation for the uniqueness of oth-
ers," she adds.

The committee includes: Celia
Whitlatch, Chris Cuevas, Omar Garza,
Al Guerra, Pat Morton, Yvonne Cutler
and Julie Maschke.

Continued on next page



Students from the Department of Energy's Student Diversity Partnership Program spent a day at Jefferson Lab in July. They were one of many student groups that visited the Lab over the summer. While here, they toured the accelerator, the Machine Control Center, cryomodule assembly in the Test Lab, and one of the Free-Electron Laser experimental labs, and also had an opportunity to interact with Radiation Control staff. This was one of two field trips the group made to DOE research facilities; the second lab they visited was Princeton Plasma Physics Lab.

Continued from previous page

United Way kicks off school materials drive; ends Sept. 7

Disadvantaged youth in Hampton Roads public school systems need your help as they prepare for the 2004/2005 school year. Collection boxes for donations of new school supplies have been placed in the ARC lobby, the VARC lobby and the CEBAF Center lobby. School supplies for students of any grade level may be placed in the boxes: pens, pencils, student scissors, crayons, spiral notebooks, 3-ring binders, binder paper, pocket folders, rulers, protractor/compass sets, etc. Donations may be placed in the boxes through close-of-business, Tuesday, Sept. 7.

The United Way will oversee collection of school supplies on Sept. 8 and handle disbursement to area schools. For more information, call Tina Johnson, Human Resources, ext. 7611.

JLab Fall Golf Tourney set for Sept. 15

The JLab Activities Group 2004 Fall Golf Tournament is set for Wednesday, Sept. 15, at Golden Horseshoe Golf Club (the Green Course) in Williamsburg, Va. It will kick off with a shotgun start at 1 pm.

The tournament will be Captain's Choice, and there must be at least two JLab employees per team. Registration for JLab employees (you receive a paycheck from JLab) is \$45. The cost for non-JLab employees is \$60. The fee covers range balls, green fees, cart, food (afterwards) and the prize fund. To register, stop at the CEBAF Center reception desk.

Payment must be made when registering; make checks payable to SURA/TJNAF. The deadline for signing up is Friday, Sept. 10. Anyone with questions may contact Danny Machie, ext. 7501, machie@jlab.org; or Mike Zarecky, ext. 7609, zarecky@jlab.org.

Standing room only at Poster Session



Todd Hutner, PST program participant, explains his summer's work to JLab visitor Cindy Musick, DOE Office of Science program manager for workforce development for science and teachers.



Rachel Black, SULI participant, talks to Alan Gavalya (far left), Physics Division, and Jim Clark, Accelerator Division, about her work with JLab's Detector Group.

More than three-dozen posters filled the CEBAF Center lobby on Aug. 4 for JLab's annual Science Education Summer Programs Poster Session. Participants of the High School Summer Honors Program (HSSHP), the Science Undergraduate Laboratory Internship (SULI), the Pre-Service Teachers program (PST), and the Teacher Academy in Physical Science Program (TAPS) shared what they had learned during their JLab experience.

ODU hosts public lectures by Physics Nobel Laureate

Old Dominion University is hosting public lectures by the 2001 Physics Nobel Laureate, Carl E. Wieman, Sept. 17 and 18 on campus. The Sept. 17 presentation "Bose-Einstein Condensation: Quantum Weirdness at the Lowest Temperature in the Universe" will run from 10 a.m. to noon at the Constant Convocation Center on 43rd Street and Hampton

Blvd., in Norfolk. Wieman will speak again on Sept. 18. From 10 a.m. to noon at Constant Hall, room 1002 also on ODU's campus, he will discuss "The Circuitous Route of a Scientific Discovery."

Brochures about both lectures (including directions) are available at the CEBAF Center reception desk. The public is invited to these free lectures. A special welcome is extended to surrounding college and university students and staff.

Continued on page 12

Briefs...

Continued from page 11

Come to 6th Intra-Net Commerce Day, Sept. 22

All JLab employees and subcontractors are invited to attend the 6th Annual Intra-Net Electronic Commerce Day, set for Sept. 22 from 9 a.m. to 3 p.m. in the Big Top Tent that will be set up for the event in the CEBAF Center parking lot. Dozens of vendors will be demonstrating their services and equipment and providing free samples. Eurest will cater a free continental breakfast at 9 a.m. and a light lunch at noon under the Big Top.

JLab Fall Science Series kicks off Oct. 4

Kristine Larsen, professor of physics and astronomy from Central Connecticut State University, will discuss the astronomy of J.R.R. Tolkien's Middle-earth at JLab's first Fall 2004 Science Series event. The presentation will begin at 7 p.m. in the CEBAF Center auditorium on Monday, Oct. 4.

Larsen's presentation: "Moon Runes, The Light of Earendil, and Durin's Crown: The Astronomy of Middle-earth" will delve into J.R.R. Tolkien's imaginary world and the many detailed astronomical allusions he presents in his stories. Some obviously correspond to objects in the real

night sky, while others have puzzled Tolkien scholars and enthusiasts for decades. Join Larsen and the audience on a tour through the astronomical lore of "The Hobbit," "The Lord of the Rings," and "The Silmarillion." Pointy ears and furry feet are welcome, but, as a security precaution, all magic rings must be left at the door.

The presentation is free and open to the public. For security purposes all traffic entering the Lab must use the main entrance (Onnes Dr.), and everyone over 16 is asked to carry a photo I.D. Security guards may inspect vehicles, book bags and purses. The presentations last about an hour and end with a question and answer period.



ON TARGET

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