August 2002

ON TARGET

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY • A DEPARTMENT OF ENERGY FACILITY

JLab welcomes Director Orbach; holds Institutional Plan Review

Ray Orbach, the Department of Energy's new Director of the Office of Science, made his first visit to Jefferson Lab Aug. 19 and 20, to lead the JLab Institutional Plan Review.

Orbach, key DOE Office of Science managers, members of JLab's DOE Site Office, prominent JLab users, and Mayor of Newport News Joe Frank and other local officials were hosted by Southeastern Universities Research Association President Jerry Draayer and JLab Director Christoph Leemann for a reception and dinner in CEBAF Center the evening of Aug. 19.

Orbach, a presidential appointee who took office on March 14, kicked off the review early the next morning to a standing-room-only crowd. He reminded the group that DOE supports 40 percent of physical science research in this country; and pointed out that about half of DOE's annual budget goes toward operating facilities, with the rest supporting research at DOE's national labs and U.S. universities. Orbach's goal is to see the Office of Science achieve the world's best research results in all areas it supports.

During his remarks, Orbach acknowledged Jefferson Lab's outstanding safety record, but citing a recent increase in incidents, he expressed concern about this troubling safety performance trend, and asked that increased emphasis be put on safety.

He also commented on the Lab's science education program and was very impressed with the enthusiasm showed for the program by Newport News City school officials.

His opening remarks were followed with a presentation by SURA President Jerry Draayer, holder of the management and operations contract from DOE for Jefferson Lab. Then, JLab Director Christoph Leemann gave Orbach and the

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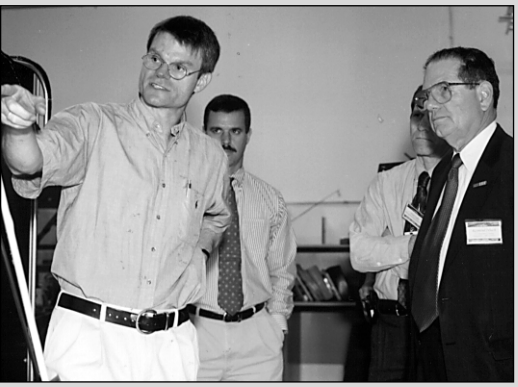
During his tour of the accelerator, Office of Science Director Ray Orbach (center) examines one of the Lab's niobium cavities at a display set up in the tunnel. With him are (from left) Larry Cardman, Physics Division; Steve Suhring accelerator operations; Lab Director Christoph Leemann, and Swapan Chattopadhyay, Accelerator Division. Several DOE and Lab officials accompanied Orbach on the tour, including Toni Joseph (background), the Office of Science, Laboratory Policy director.

Orbach visits, holds IP Review...



Gunter Luepke (left), College of William & Mary, discusses his Free-Electron Laser based research for Office of Science Director Ray Orbach. Flanking Luepke is Brian Holloway, W&M, who uses the FEL for carbon nanotube development and research. Flanking Orbach is FEL Program Manager Fred Dylla.

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Institutional Plan Review team an overview of the Lab, followed by a discussion of the institution and its programs, the Lab's vision and strategic plan, its accomplishments and near-term plans, challenges and management focus.

After a short break, Physics Division Associate Director (AD) Larry Cardman discussed the Lab's scientific program, including experiment highlights from the current program and the Lab's part in the Lattice Quantum Chromodynamics project. Next, JLab user and Indiana University physicist, Alex Dzierba discussed the science of quark confinement as a prelude to Larry Cardman giving a compelling outline of the science accessible with the 12 GeV upgrade beyond the research in the Hall D program. Cardman presented a beautiful and lucid explanation of the powerful but not easily explained concept of general parton distribution.

A tour of the Lab's accelerator, three experimental halls and the Free-Electron Laser followed the presentation. Orbach met with several members of the Lab's User Group over lunch, while senior leadership joined the IP Review team for lunch. The afternoon included a presentation by Accelerator Division AD Swapan Chattopadhyay on JLab's pre-eminence in the nation's accelerator and superconducting radiofrequency science and technology; followed by FEL Program Manager Fred Dylla discussing the capabilities and opportunities of the Free-Electron Laser and other possible light sources. The final presentation of the afternoon covered the Administration Division and was presented by the AD of Administration, Roy Whitney.

Jefferson Lab's proposed upgrade to 12 GeV and the building of a fourth experimental hall, and the work JLab is doing in support of the DOE's Spallation Neutron Source were high-profile topics during the review. Orbach, a solid-state physicist and the former chancellor of the University of California Riverside, was keenly interested in the Lab and peppered several of the presenters with questions.

At the end of the day he held a closeout session with Christoph Leemann and Jerry Draayer. Orbach complimented Leemann on the high-quality science being done at JLab and for the Lab's standing as an expert in superconducting radiofrequency and accelerator capabilities. He described the Lab's efforts as "world-class," but reminded Lab management that the Lab must continually strive for the Office of Science goal of being the world's best. He expressed concern that the Lab was spreading itself too thin in some areas; and he urged management to set a clear focus, and priorities for all Lab activities.

Afterward, Leemann commended Lab staff for the efforts that went into preparing for, organizing and carrying out the IP Review and Director Orbach's visit. He described the interactions between DOE leadership and local officials as very fruitful. He was delighted with the IP Review presentations, user participation, the tour, and the overall appearance of the Lab.

Office of Science Director Ray Orbach (center) receives an update on G^0 (G Zero) experiment installation in Hall C from Allison Lung, Lab staff scientist and G^0 project manager. Orbach is accompanied by (from left) Jerry Conley, JLab's DOE Site Office manager; Lab Director Christoph Leemann; Dennis Kovar, Office of Science, Nuclear Physics Division director; Swapan Chattopadhyay, Accelerator Division and Larry Cardman, Physics Division.

From the Director

Christoph Leemann
Jefferson Lab Director

Safety is vital to health — yours and the Lab's

Dear Collaborators,

Life and health are precious, and we take them for granted only too easily and forget that they can be rather fragile. A sound body and mind are among our most valuable assets, and while they do not guarantee happiness or success, they certainly make it much easier to attain these goals, and they are a source of joy and well-being all by themselves. Of course, we have to engage, live, work, and play in a world full of hazards. We sometimes even pursue hazardous activities for pleasure, from kayaking to hang gliding or mountaineering to mention just a few examples. These pursuits have their dangers but done right they show us the value of responsible risk management, and of taking the proper precautions. They also often dramatically illustrate the difference between a serious participant and the reckless amateur.

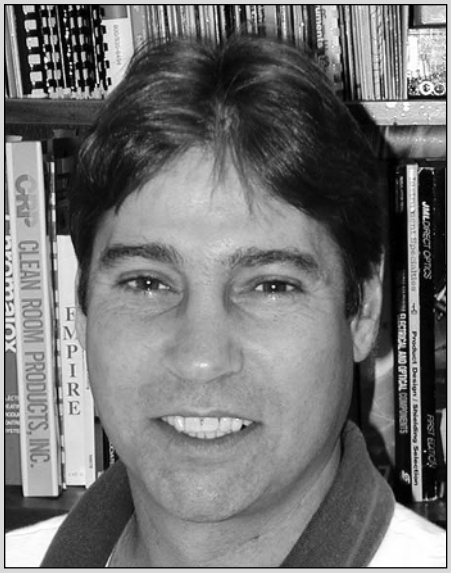
At the work place these concerns become heightened for several reasons. First, the work environment is primarily of our own making and therefore with the proper safeguards and the proper behavior it is feasible to completely avoid serious injury. Second, unsafe behavior on your part may put co-workers in danger, colleagues who trust and depend on you to be a safe and reliable partner. Third, serious accidents can put the Lab in jeopardy, negatively impacting the mission, and in a worst-case scenario leading to a loss of funding and therefore employment.

If you study the Lab's safety record over the last few years you will see that our numbers (such as reportable injuries and lost work days) still look very good but that there has been a disturbing upward trend. I do not yet know what the underlying reason is, but I know that we will have to work together to turn that trend around. I am eager to learn how you who do the work view safety and safety issues, and I will gather data by a variety of approaches. I don't know what I will find but let me assure you now that in my view there is absolutely nothing so important that it would justify neglecting safety; and from supervisors I expect that they lead their teams to stay out of harm's way as they accomplish their mission.

We as an organization are committed to Integrated Safety Management (ISM), and if we follow the precepts of this approach we will be safe. There are seven key principles in this approach — please discuss them with your supervisor — and they are implemented through five core functions: work planning, hazard and risk analysis, establishing the appropriate controls, performing the work within guidelines, and feedback and improvement.

Let me reiterate that I care about your well-being, and want to ensure the success of our mission, and the continuing health of our organization. You are a great work force; please, pay attention — stay safe, stay healthy.

In Memoriam



Karel Capek
Mechanical and Electrical
Instrument Technical Associate

JLab mourns loss of Karel B. Capek

Karel B. Capek, 47, Accelerator Division Mechanical & Electrical Instrument Technical Associate, died Sunday, July 7. He had been a member of Jefferson Lab since 1989.

He joined the Lab in December 1989 with a diverse background that included working in the oil fields of Wyoming, the steel mills of Venezuela and a stint in the Navy aboard the U.S.S. Coral Sea. At Jefferson Lab, Karel worked on much of the Continuous Electron Beam Accelerator's beam diagnostic equipment.

His electromechanical skills, as well as his attitude and ability to work with people made him a highly valued member of the Lab. He was very instrumental in the upkeep of the beam viewer system; he installed and helped commission synchrotron light monitors throughout the accelerator. He also installed the extremely delicate foils for the Free-Electron Laser (FEL) beam viewers. Wherever there is a harp, beam viewer or light monitor you can bet Karel had something to do with it.

"I worked with Karel for many years; he was a wonderful person to work with," reminisces friend and co-worker Kim Ryan, Accelerator Division electronic designer. "He loved his job and it showed in many ways. Karel always came to work with a smile and a positive attitude. When you spoke with Karel you knew you had his undivided attention whether speaking personally or professionally."

"When somebody wanted to know something about a particular component related to the machine, he could spout off part numbers and manufacturers from memory," Ryan continues, "and then proceed to explain the component in detail. I have never known anybody to know his work in such precise detail. He was extremely thorough."

"His blue and white truck stuck out among the rest of the vehicles when it was parked at the Tech Shop or the MCC. That was a sure sign Karel was hard at work. He was one of the most caring and kind people I have ever known. I miss my co-worker, but even more than that I miss the honest friendship we shared," she said.

Swapan Chattopadhyay, Accelerator Division associate director, acknowledged and mourned Karel's death in an electronic message (excerpted here). "The sudden and unexpected loss of Karel Capek has affected the entire division, and many quarters of the Lab as a whole. Karel's careful and thorough work on electron beam instrumentation is behind much of the accelerator's successful operation. The Laboratory has been privileged to benefit from his considerable and unique expertise in electronic instrumentation. His contributions have been critical to the Laboratory's successes. Together, Karel and the Laboratory were developing an understudy program in his area of unique expertise when the sad news of his death reached us. He will be sorely missed at Jefferson Lab but his contributions will remain visible for years to come, through the groundbreaking research taking place at Jefferson Lab."

A resident of Williamsburg, Karel Capek is survived by Kay, his wife of 18 years; three children, Jonathan, Casey and Justin; and stepson, Butch Hill. A funeral service for Karel was held July 11, in Williamsburg.

by James Schultz

Critical juncture

The need to make the case for physics funding

Brad Keister
National Science
Foundation

Anyone meeting a household budget eventually must deal with a shortfall, a deficit or a reduced income. For physical-sciences researchers, fiscal anemia has seemed a chronic condition in recent years. In particular, federal outlays for physics research have either declined by small amounts, or if increased, have done so slightly and barely enough to keep pace with inflation.

According to the Congressional Budget Office, overall FY 2002 funding for space and science research — part of the $381 billion non-defense discretionary federal budget — increased by 5 percent, to $21 billion. Look more deeply into that figure, says Brad Keister, program director for nuclear physics at the National Science Foundation, and you'll discover that physics research has had a hard time staying even with its peers in the life sciences.

"It's certainly true that biology and health sciences programs have enjoyed substantial increases," Keister points out. "The best place to look is the NIH [National Institutes of Health], which has been getting 15 percent increases per year for the last five years. The physical sciences aren't keeping up."

Why is physics lagging? There is no simple, single answer, Keister believes. Some of the reduction in the rate of increase can be tied to the end of the Cold War and the easing of tensions between the United States and Russia. Another has to do, ironically, with the sciences' success: because of decades-long government support, and the resultant proliferation of laboratories and programs, more researchers than ever before are seeking funding, which has the net effect of reducing discipline-specific allocations under flat budgets. And for many decision-makers, the "discovery potential" in the biological sciences seems more promising.

Closer to home, in the Physics Division at NSF, only the fields of atomic, molecular and optical physics are witnessing funding increases. In particular, Keister says, "the tools and opportunities afforded by the science and technology of lasers are very strong."

The NSF Nuclear Physics Program follows established procedures in deciding what grants to award and for what amounts. Proposals usually receive three independent reviews written by experts in the field. Then a panel meets to consider all of the proposals together and to recommend funding priorities. Most awards are made on a three-year, continuing basis, with money more or less parceled out equally every year.

In a given fiscal year, the Nuclear Physics Program may make 20-25 awards to about 65 investigators, with an average value of $375,000 per investigator for the three-year life of the grant. That accounts for about $25 million of available funds. The remainder, or $15 million, goes to support the National Superconducting Cyclotron Laboratory at Michigan State University. Two-thirds of that ongoing grant goes to support operations, with one-third dedicated to research.

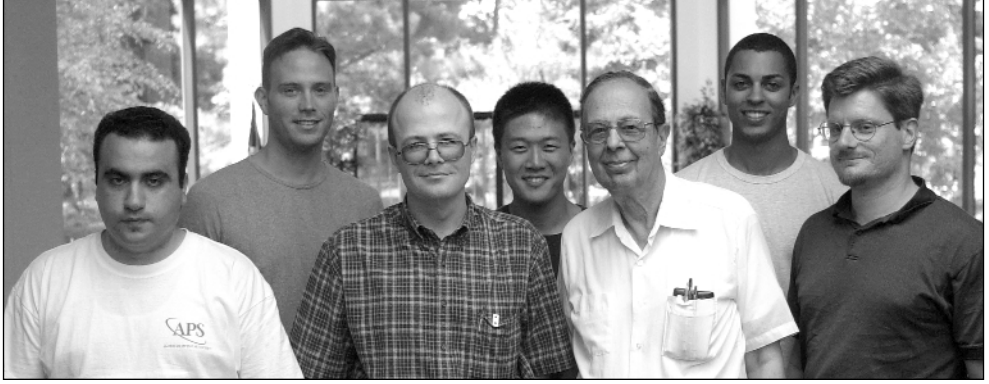
Generally speaking, Keister points out, researchers at Jefferson Lab have fared well when requesting NSF support. Several million dollars per year in NSF funding go to JLab experiments, on the basis of competitive reviews and panel evaluations that span nuclear physics. "The fact that we fund a number of JLab-related proposals attests to the Lab's capabilities and ingenuity and the creativity of the people who work there."

Like it or not, says Keister, the days of automatic funding increases for the physical sciences are long gone. Granting agencies are being pulled in many different directions at once. The same is true of the Congressional appropriators who determine agency budgets. "Many people in Congress are aware of the benefits of scientific research, and wish to support it," Keister says.

"However, at the end of the day, appropriators and agencies eventually end up with a bottom line, and must make hard choices with limited budgets. For successful funding, researchers will need to make their case on an ongoing basis in a competitive environment at all levels of government: for science funding in a federal budget with many domestic and international priorities, for the physical sciences in the context of all scientific research areas, for nuclear physics within the physical sciences, and for their proposal in a portfolio of strong nuclear science projects."

Up close!

Clearer view of neutron reveals charged locales

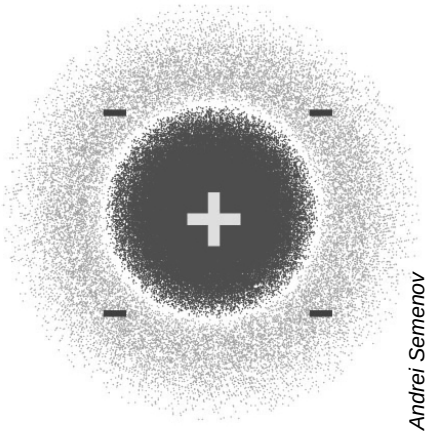


Joining Richard Madey (front row, 3rd from left), well-known Hall C user, are several members of his E93-038 team. Madey mentors a significant number of graduate students, doctoral candidates and post-doctoral fellows. Accompanying Madey for this photo is part of his group (front row, l. to r.) Aram Aghalaryan, Yerevan; Andrei Semenov, Kent State; and Simon Taylor, MIT; (back row, l. to r.) Glen MacLachlan, Ohio; Bradley Plaster, MIT and Erick Crouse, William & Mary.

by Melanie Cooper
contributing writer

Physicists have long known that neutrons are slightly positive at the core and slightly negative at the surface. But, until recently, they hadn't quantified the charge distribution. An experiment collaboration in Jefferson Lab's Hall C is the first to measure the neutron's electric charge density distribution with unprecedented precision.

The key to the not-so-neutral neutron is in the quarks. In a simple quark picture, neutrons are made up of three quarks — one "up" quark with an electric charge of +2/3 and two "down" quarks, each with a charge of -1/3. Quick mental arithmetic tells you that the total electric charge of the neutron is zero. But taking a closer look shows a more complex story. When the neutron is viewed with a probe that cannot see objects smaller than the size of a neutron, the net charge of the neutron is zero. But a closer look with a probe that can examine objects smaller than the neutron reveals the distribution of charge within the neutron, which depends on the spatial distribution of the quarks.



Charge distribution of the neutron

Graphic by Andrei Semenov

Jefferson Lab experiment 93–038 found that distributions of oppositely charged quarks don't quite cancel each other out, leaving a positively charged interior and negatively charged surface. These findings agree qualitatively with the theory of quark-quark interactions, but rigorous theoretical calculations of neutron (and proton) structure will be very difficult.

The research team, led by Dick Madey, research professor and University Professor Emeritus of Physics at Kent State University, used Jefferson Lab's unique high-intensity, highly polarized, continuous electron beam to probe the neutron's structure. Since neutrons are not found in isolation, the team used the next-best target for their scattering experiments — a deuterium nucleus.

Deuterium, an isotope of hydrogen, has a neutron and a proton bound loosely together in its nucleus. The target was kept cryogenically cold to maintain the deuterium in a liquid state. "We needed the density of a liquid to obtain a sufficient number of scattering events to measure the relatively small effect of the neutron charge," explains James J. Kelly of the University of Maryland in College Park and a member of E93–038.

After firing electrons at the "neutron" target, they selected scattering events where the neutron had been nearly at rest, and therefore received the entire momentum transfer from the electron.

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The Elusive Neutron!

CLAS delves into secrets of particle's structure

The CEBAF Large Acceptance Spectrometer (CLAS) is like a perfect survey instrument. Because it surrounds the interaction point in Jefferson Lab's Hall B, it can record several particles produced in a subatomic interaction at once. More than 40,000 data channels convey information on the trajectory (measured with drift chambers), speed (time-of-flight counters) and energy (electromagnetic calorimeters) for all detected particles, up to 3,000 times a second. Often, multiple experiments run at the same time in Hall B, and data for all of them are collected simultaneously.

During the recent (February through mid-March) run dubbed "E6," researchers used CLAS together with CEBAF's 5.7 GeV continuous electron beam to gather new insights on several fundamental questions about the neutron. The neutron is one of the two building blocks (together with the proton) of every nucleus, and its properties are just as interesting and important as those of the proton.

Unfortunately, these properties are usually obscured because neutrons are generally bound inside nuclei. E6 collaborators from several universities and Jefferson Lab, working on the experiment "Electron Scattering from a High-Momentum Nucleon in Deuterium" are seeking a clearer view of this elusive neutral partner of the proton. This experiment was proposed by co-spokespersons Keith Griffioen, College of William and Mary; and Sebastian Kuhn, Old Dominion University.

Kuhn, an ODU associate professor of physics, says that the overall results of the study, which ended March 10, appear promising.

"We're not ready to say we've found new things in our data. So far, we haven't analyzed enough data to say what ultimately we'll discover," he contends. "What we can say is that we've developed a method of extracting the true energy needed to excite a neutron resonance, even if the neutron is moving. We collected all the data we were hoping for; and I believe we'll learn important things about the neutron's internal structure."

Scientists must observe neutron behavior indirectly because single neutrons are inherently unstable. That's why researchers must use the nucleus to study neutrons, Kuhn explains. Unbound from their stable pairing with protons inside the nucleus, neutrons — which have more than 1,800 times the mass of electrons and are just slightly more massive than their partnering protons — decay by emitting radiation, in the form of a proton, an electron and a particle known as an antineutrino. Experimenters directed Hall B's electron beam into a vial filled with deuterium liquid. Deuterium is a "heavy" isotope of hydrogen, with one proton and one neutron in its nucleus.

Because both are bound together in the atomic nucleus as a pair, their movements are mirror images of each other. As either is ejected from the nucleus, the other is liberated as well, and scientists are able to infer their initial motion from the resultant trajectories.

"We basically take a snapshot of how fast and in what direction the proton, and therefore the neutron, was moving before being hit by the electron," Kuhn explains. "Our experiment can tell us two things. First, it reveals what's going on inside the neutron. Secondly, it tells us how being bound to a proton changes its properties."

From left: Sebastian Kuhn, ODU; Bogdan Niczyporuk, JLab; Arne Freyberger, JLab; and Keith Griffioen, College of William and Mary, examine experiment data flowing into the Hall B control room.

Kuhn suggests another method of visualization might be to compare the scattering process to using a hammer to gauge the nature of a water glass. If one would touch a hammer lightly to the glass, without breaking it, certain properties like smoothness and shape could be inferred. (This is called "elastic scattering.") Strike the glass lightly with the hammer, and the sound it makes reveals more about the structural composition of the glass and, therefore, its method of manufacture. (This corresponds to the excitation of neutron resonances through "inelastic scat-

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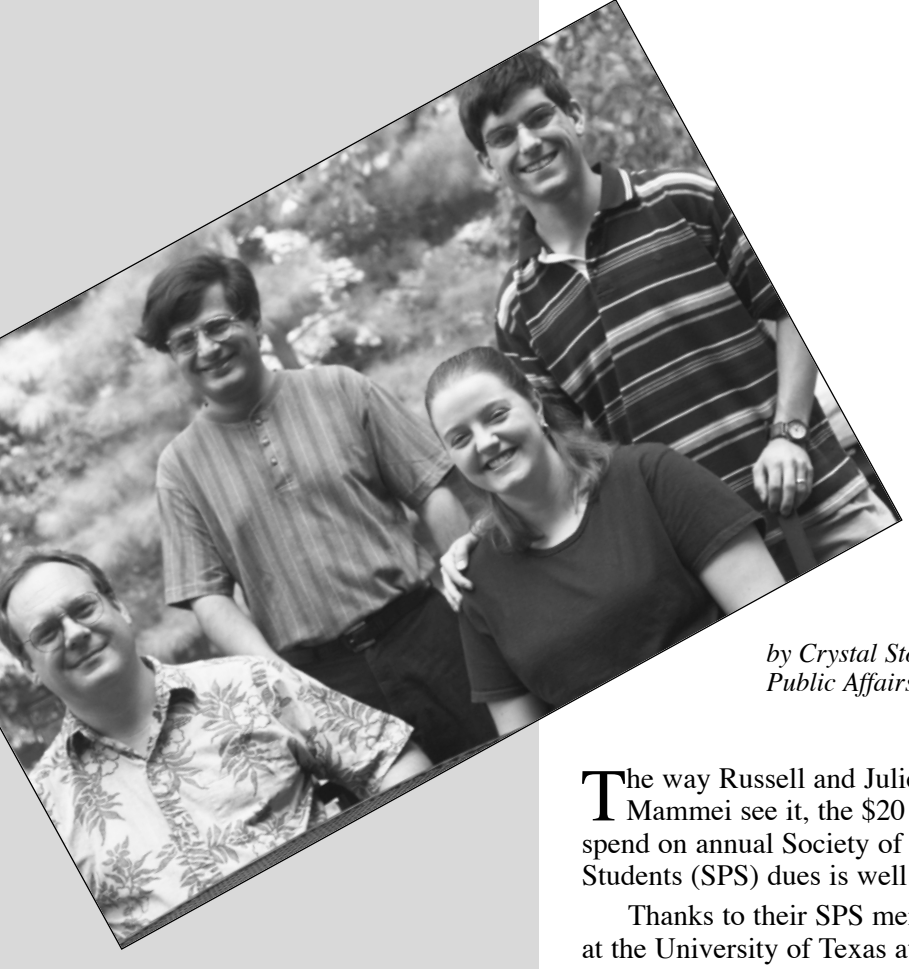

Physicist Phil Cole (l. to r.) takes a break on the CEBAF Center patio with three of his students who were at JLab this summer: master's student Eduardo Gonzalez, and Juliette and Russell Mammei.

$20 membership fee brings students to Lab for research experience

by Crystal Story
Public Affairs Intern

The way Russell and Juliette Mammei see it, the $20 they each spend on annual Society of Physics Students (SPS) dues is well worth it.

Thanks to their SPS memberships at the University of Texas at El Paso (UTEP) and the support they get from their SPS chapter advisor and JLab bridged professor, Philip Cole, the married undergraduates spent most of this summer at JLab studying nuclear physics. They will use their research in their respective honors program senior theses. Russell worked for Hall B while Juliette delved into Hall C.

Juliette spent much of her time this summer working on Monte Carlo simulations — a way of randomly generating events to test probabilities — of the planned Hall C Super High Momentum Spectrometer (SHMS). "It is being designed for the proposed 12 GeV upgrade," she explains. "I've been plotting the resolutions from single-arm phase space simulations. I am currently working on the resolutions and count rates for exclusive p0 (pi zero) production."

Russell, on the other hand, has spent his time calibrating, or determining the resolution of, one of the detector systems in Hall B: the instrumented collimator. His efforts in calibrating the UTEP/Orsay instrumented collimator have allowed Hall B researchers to align the linearly polarized beam to within 50 microns. According to Phil Cole, Russell's work is quite an achievement and will increase the quality of data for the g8a run in Hall B.

Through SPS, Russell has already earned recognition for his academic excellence and leadership activities. He won a $1,000 SPS Leadership Scholarship for the 2001-2002 academic year; then went on to win the single $4,000 SPS Leadership Scholarship for 2002-2003 by taking first place at the national level.

Before transferring to UTEP, Juliette was a student at Juniata College in Pennsylvania, where she first became involved in SPS. After transferring, she found out about UTEP's SPS chapter and became involved there as well. Russell was enrolled at UTEP and heard about the trips offered through SPS and wanted to get involved. "I was told all I had to do was become a member," Russell recalled. So he paid his $20 and started looking for opportunities to broaden his physics experience. He was very excited about spending the summer at JLab. "That $20 SPS membership fee was more than worth it," he comments. "It's probably the best $20 I've ever spent!"

The two students attribute much of their SPS chapter's growth and successes to the efforts of Cole. He was named the SPS Advisor of the Year in 2001-2002, which came with a $5,000 prize. And the UTEP chapter received the Outstanding Chapter Award for the same period.

Cole, previously with George Washington University, joined the UTEP physics department staff in September 1997. He'd been there only four months when a group of students approached him about becoming the advisor of the UTEP SPS chapter. Cole has planned trips for UTEP's SPS members, helped them get into Southeastern Universities Research Association universities to attend graduate school, and basically turned the

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Clearer view of neutron reveals charged locales...

Continued from page 6

Madey and his colleagues measured the polarization of the scattered neutron using a neutron polarimeter, a special detector designed by Madey. It is a "stand-alone" device that can function simultaneously as a neutron and a proton polarimeter. From this they determined the neutron's so-called electric form factor. From the electric form factor the density of the charge within the neutron was deduced.

"E93–038 has been able to measure the neutron electric form factor more precisely than ever before and to infer the charge density with much better resolution," Kelly says.

The new data extend scientists' knowledge of the neutron electric form factor to higher momentum transfer and improves their understanding of the charge distribution within the neutron. "This is a unique experiment because the technique used provides extremely small systematic uncertainties," says Andrei Semenov of Kent State University in Ohio, also a member of the experimental team. "The results are extremely reliable."

Hall C Scientist Roger Carlini agrees, calling this a "flagship experiment" for Jefferson Lab. He says the Lab's measurement of the neutron form factor is "already a textbook measurement" and that it will likely remain so for the foreseeable future. Measurements of the neutron electric form factor at even higher momentum transfer are planned using a polarized target in Hall A at Jefferson Lab.

Collaborator Andrei Semenov presented the findings, in an invited talk, at a joint meeting of the American Physical Society and the High Energy Astrophysics Division of the American Astrophysical Society in Albuquerque, New Mexico in April. Four of the graduate students participating in the experiment also contributed to talks during the meeting, based on the analyses of their respective parts of the experiment. The collaborators have presented their results at a number of international workshops already this year, and have several more symposium and workshops to attend.

CLAS delves into neutron's structure...

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tering.") Ultimately, the hammer could break the glass; examining the pieces could yield even more insights. "If you hit it really hard and smash the glass — in physics, when we hit a target at high energies, we call it 'deep inelastic scattering' — you learn from the size of the pieces and how much they resist the hammer blows," Kuhn explains. "In all of these cases, knowing how the neutron — 'the glass' — was moving before striking it with the 'hammer' allows us to get much more accurate and detailed information."

Scientists also want to compare the properties of fast and slow moving neutrons, since high initial speed means that the proton and neutron were close to each other before the neutron was struck. In this Hall B experiment, most of the observations occurred on fast-moving neutrons, which may have a modified structure because of the close proximity of protons. A slow-moving neutron, on the other hand — one that moves no faster than one-tenth the speed of light — "is as close to a free neutron as one will ever get," Kuhn says. "Then we can really learn about neutron structure." To do this, Kuhn and his colleagues have formed the Bound Nucleon Structure Collaboration, or BONUS, which hopes to conduct a follow-on experiment. If approved, that study would run in Hall B, during 2004.

Scientists would also like to learn more about neutrons colliding with their proton partners before both fly apart. According to a theory called "Color Transparency," if the neutron is struck hard enough, it becomes compressed momentarily and can more easily avoid colliding with the proton on the way out. Details of this process would prove invaluable in painting a complete picture of these two building blocks of nuclear matter. Data on this process were collected for the second experiment of the E6 run, which was proposed by Kim Egiyan, Yerevan Physics Institute; Keith Griffioen, W&M; and Mark Strikman, Pennsylvania State University.

$20 fee brings students to JLab for research experience...

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chapter at UTEP around. In May of 2000 he hosted a four-day field trip to JLab for 17 UTEP SPS students.

The Society of Physics Students has 700 chapters and 4,500 members nationwide. It is a professional association designed for students — to help transform them into contributing members of the scientific community by encouraging development of the skills they need to flourish professionally. SPS is an organization within the American Institute of Physics.

UTEP's SPS chapter is hosting the Zone 16 meeting (Arizona, New Mexico & west Texas) in October and Cole is certain his chapter will be recognized for its many accomplishments this year. At one point the UTEP chapter had only three members; it now boasts 20. The current chapter president and one of Cole's students who visited JLab in 2000, Mario Borunda, won a 2002-2003 Leadership award and is the new associate counselor for Zone 16. He is doing his nuclear physics honors senior thesis measuring the thickness of thin foils using an alpha particle beam with money the chapter won through an SPS undergraduate research award.

Briefs

Milestones
for June 2002

Hello

Kenneth W. Boyes, Facilities Shop Supervisor, Administration Division

Goodbye

Samantha K. Albright, Employment Administrator, Administration Div.

Leigh Ann Garza, Science Education Administrator, Director's Office

Diana L. Hoegerl, Hall C Designer, Physics Div.

Michael C. Necaise, Magnet Measurement Technician, Accelerator Div.

for July 2002

Hello

Chandra L. Gilchrist, Accounts Payable Clerk, Administration Div.

Richard J. Yesensky, Project Services Manager, Accelerator Div.

Goodbye

Robert A. Vignato, RF & Microwave Design Associate, Accelerator Div.

TOCTWD Pringle Contest winners named

Results are in from the Take Our Children To Work Day Pringle Contest held earlier this year. One of the many activities Lab children participated in was a contest where they teamed up with another student, then, together they created a package suitable for mailing a lone Pringle potato chip.

The goal of the activity was to package the potato chip so carefully that it would withstand the rigors of mailing and arrive at its destination unbroken, according to Stacy Ring, Science Education technician. One at a time, the packages were mailed from the Lab to the home of one of the Science Education staff members. And the results are in. The potato chip packaged by the team of Mikhail Nadjkovic and Austin Hansknecht reached its mailing destination unbroken!

Mikhail came to TOCTWD with Melissa Mills, Administration Division, and Austin came with John Hansknecht, Accelerator Division.

Catch the latest on upcoming events: blood drive, Oktoberfest, Fall Science Series

Please mark your calendars! Dates have been set for Jefferson Lab's annual Oktoberfest, the next blood drive, and for the educational and entertaining Fall Science Series.

The Lab's next blood drive is scheduled for Monday, Oct. 14 from 10 a.m.– 4 p.m. in CEBAF Center, rooms L102-104. Contact Vicki Barnett, Medical Services, ext. 6269, or e-mail vbarnett@jlab.org for more information. She hopes as many people as possible will participate in this life-saving activity. She's currently looking for bloodhounds (volunteers who help sign people up for the blood drive), and volunteers to staff the sign-in table the day of the event.

A date has been set for the Lab's annual Oktoberfest, according to Dave Williams, JLab Activities Group chair. It will be held Thursday, Oct. 24 in the field behind the Residence Facility from 3-6 p.m. "We're planning the activities now. Plan on refreshments and lots of fun — a costume contest, pumpkin toss and the always-popular tug-o-war. Start getting your teams formed now," Williams says. "We'll need lots of volunteer help to make it a success. A couple weeks before the event, we'll post the volunteer list on the JAG web page." Watch www.jlab.org /jag/ for more information.

The Jefferson Lab Fall Science Series kicks off on Wednesday, Sept. 18 with Robert Ehrlich, noted scientist and author of 19 books. The George Mason University professor will be discussing the issues he raises in his most recent book, "Nine Crazy Ideas in Science: A Few Might Even Be True."

Some of possibilities he contemplates in his new book include: AIDS is not caused by HIV. Coal and oil are not fossil fuels. Radiation exposure is good for you. Distributing more guns reduces crime. Theses ideas make headlines, and most educated people scoff at them. Yet some of science's most important concepts — from gravity to evolution — have surfaced from the pool of "crazy" ideas. In fact, a good part of science is distinguishing between useful crazy ideas and those that are just plain nutty. In his book, Ehrlich, a well-known physicist with an affinity for odd ideas, applies his open mind to nine controversial propositions on topical subjects. Some, it turns out, are considerably lower on the cuckoo scale than others.

The October Science Series presentation, featuring "Chemistry: It's More Than Puffs and Bangs!" will take place Tuesday, Oct. 29. Joe Schwarcz, from the McGill Office for Chemistry and Society, Montreal, Canada, will conduct a series of educational and entertaining demonstrations that convey the excitement of science in general and chemistry in particular.

The last event for 2002 is scheduled for Tuesday, Nov. 19, and will feature Kevin Pope, Geo Eco Arc Research, Aquasco, Md., presenting "Dinosaur Extinctions and Giant Asteroids." He will share the story of the Chicxulub impact crater, created 65 million years ago by the asteroid that wiped out the dinosaurs.

All Science Series events begin at 7 p.m. in the CEBAF Center auditorium. The presentations last about one hour with a question and answer period at the end. The events are free and open to anyone interested in learning more about science. For security purposes during Science Series events, enter at the Lab's main entrance (Onnes Dr.). Everyone over 16 is

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asked to carry a photo I.D., and security guards may perform vehicle checks.

Reynolds shares fate of his marrow recipient

The young recipient of Leon Reynolds' Feb. 19 bone marrow donation died May 23. Initial reports of the youngster's health after the marrow transplant were very positive, according to Reynolds, a JLab accelerator operator. But in late May his condition worsened as his body fought multiple infections.

In May, Reynolds was contacted a second time by the National Marrow Donor Program to see if he was willing and able to make a second marrow donation to the young cancer patient. NMDP policy, to ensure the health and safety of both the donor and receiver, required that Reynolds go through the complete physical exam process he'd gone through before making his first donation. Reynolds received the green light from NMDP and was at the hospital preparing to make the second life-saving donation when he received word that the young man had died.

The family of the young cancer patient released his personal information through the NMDP. Leon was given the funeral location and address; he flew to Chicago and attended the young man's funeral. He met the family of his marrow recipient. "They were so grateful for what I'd done and for the additional time the bone marrow transplant had given him. Meeting the family and seeing how appreciative they were of me helped me deal with the final outcome of this situation," Reynolds said.

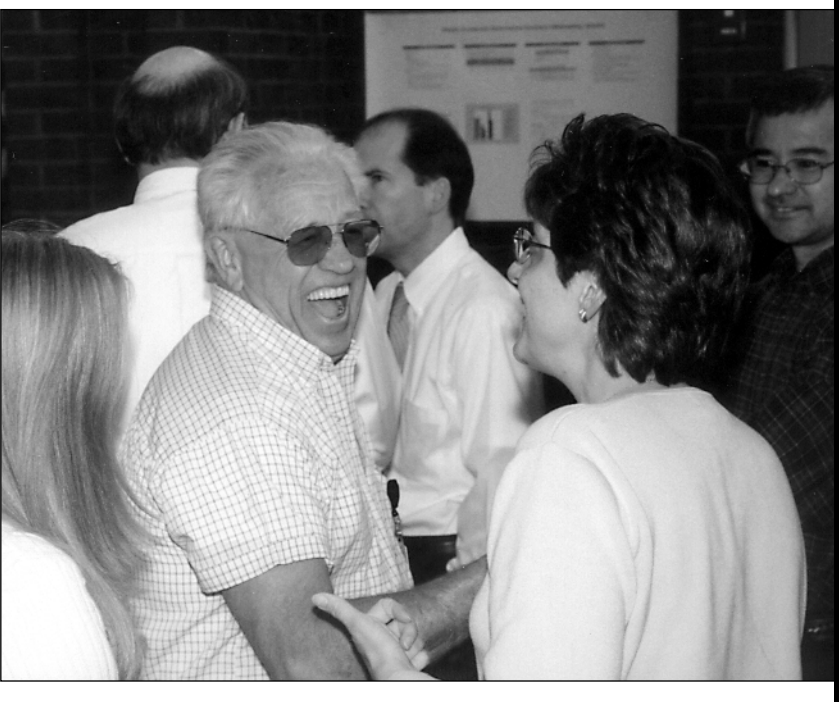
"The young man had made it to his 13th birthday," Reynolds continued, "and his mother informed me that after the marrow transplant, his condition improved enough that he was scheduled to go home, but he developed multiple infections, which lead to multiple organ failures."

"It was heart wrenching. I never had the chance to meet him but I feel like I lost a part of me," Reynolds admitted. "I thank all of my family, friends and colleagues who supported me during this. I feel as if many of you have gone through this process with me. I pray that through our experience each of us is reminded how precious a life is and that each of us has the power to improve or save a life. If you can, please consider donating blood or blood platelets or joining the bone marrow registry."

Because of the amount of experience Reynolds has had with the marrow donor program, the Red Cross has asked him to sit on two panel discussions at their annual national convention in October. Discussion topics will include alternate ways to handle the bone marrow donor process with Red Cross doctors and executives. "I never imagined being a part of all of this when I registered with the NMDP," Reynolds said. "I owe all of it to JLab."

A story about Leon and the marrow donation process was printed in the April 2002 *On Target*.

Happy Retirement, Don Seeley!



Don Seeley, one of the Lab's first employees and undisputed Lab jokester, retired from his job as Plant Engineering supervisor at the end of April. Since retiring, he hasn't missed a day at work with his handy-man business. Wife Estelle, JLab Business Services buyer, says he sets his own pace, picks the jobs he wants to do, and enjoys fishing on the James River on his days off. "He is totally relaxed and couldn't be happier," she reports.

He enjoys getting up in the morning, and teasing Estelle about the fact that he no longer has to be at work by 7 a.m. When he's doing a job near the Lab, he and Estelle generally meet for lunch.

In November 1999, he was among the first group of employees to celebrate 15 years of service to the Lab. He retired on April 24 with 18 years at the Lab and a combined 28 years of service to the State.

He worked diligently and took great pride in maintaining Lab facilities, but he could always be counted on at JLab Activities Group events to produce a great joke, wear the most outrageous costume, or come up with the zaniest idea for the old Golf Cart Parades. Here Don enjoys the scores of people who turned out for his retirement party, held in the VARC lobby.

Frank Close wins award

Takes ABSW 'best feature on science subject' writing award

Frank Close, internationally known British physicist and JLab's interim deputy for science, recently won the 2001 GlaxoSmithKline/Association of British Science Writers' award for "best feature on a science subject in a national or regional newspaper."

Close's winning feature was "Dark Side of the Moon," published Aug. 9, 2001, in *The Guardian*, a British newspaper. The award earns Frank Close 2,500 British pounds.

GlaxoSmithKline and the Association of British Science Writers present seven awards of £2,500 each year to writers and broadcasters who an independent panel of judges deems "to have done the most to enhance the quality of science journalism in Great Britain." The winners were announced at a gala dinner in London in early July.

More than 150 submissions were nominated for the seven awards. Stories published or broadcast between Jan. 1 and Dec. 31, 2001, were eligible for the 2001 GSK/ABSW awards.

Close is currently a Fellow, teaching at Exeter College (Oxford) and doing research in the Theoretical Physics Department. He is also the professor of astronomy at Gresham College, London, and a vice president of the British Association for the Advancement of Science. He is a theoretical, high-energy particle physicist, who is also dedicated to the public understanding of science. His research is concerned with the quark structure of matter and the "glue" that binds them together.

Gear up for food, fun, freebies at JLab's annual Vendor Tool Show

JLab's Stockroom manager, Bill Brisiel, is excited and he hopes everyone on site is as full of anticipation as he is — about the Lab's 4th annual Intra-Net Vendor Tool Show.
It is scheduled for 9 a.m. – 3 p.m., Wednesday, Oct. 9 under a large tent that will be set up in the CEBAF Center parking lot, just for this event.

"It's going to be great," Brisiel exclaims. "We're expecting around 15 vendors, and several of them will be giving away samples, as in years past. We'll also have free continental breakfast, and lunch available. So plan now to come out and enjoy Vendor Day."

ON TARGET

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