November 2000

ON TARGET

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY • A DEPARTMENT OF ENERGY FACILITY

Committee announces accelerator, experiment schedule through 2001

The overall operation of the Continuous Electron Beam Accelerator Facility continues to be limited to approximately 30 weeks per year as a result of the Lab's operating budget for fiscal year 2001.

The Lab's Nuclear Physics Experiment Scheduling committee recently released an updated accelerator schedule running through December 2001. The new schedule is available on the Lab's web page (www.jlab.org/exp_prog/experiment_schedule). Detailed notes from committee co-chairs Larry Cardman and Andrew Hutton can be found at www.jlab.org/exp_prog/experiment_schedule/2000/pub_nov00/footnotes.html.

In developing the new schedule, the committee met several times to resolve conflicting requirements and to ensure that sufficient resources would be available at the Lab to properly stage and carry out each of the experiments. The schedule was derived by examining the requests for major installation work in the experimental halls, evaluating the number and kinds of technicians needed, then scheduling to minimize overlap. Each Hall leader took the running time requests submitted by experiment spokespersons and prioritized them based on the Program Advisory Committee's recommendations and guidance in the scheduling committee's charter.

Cardman and Hutton noted three unusual aspects to the new schedule. First, the previously released "tentative" schedule for January–June 2001 and some details for the schedule through the end of

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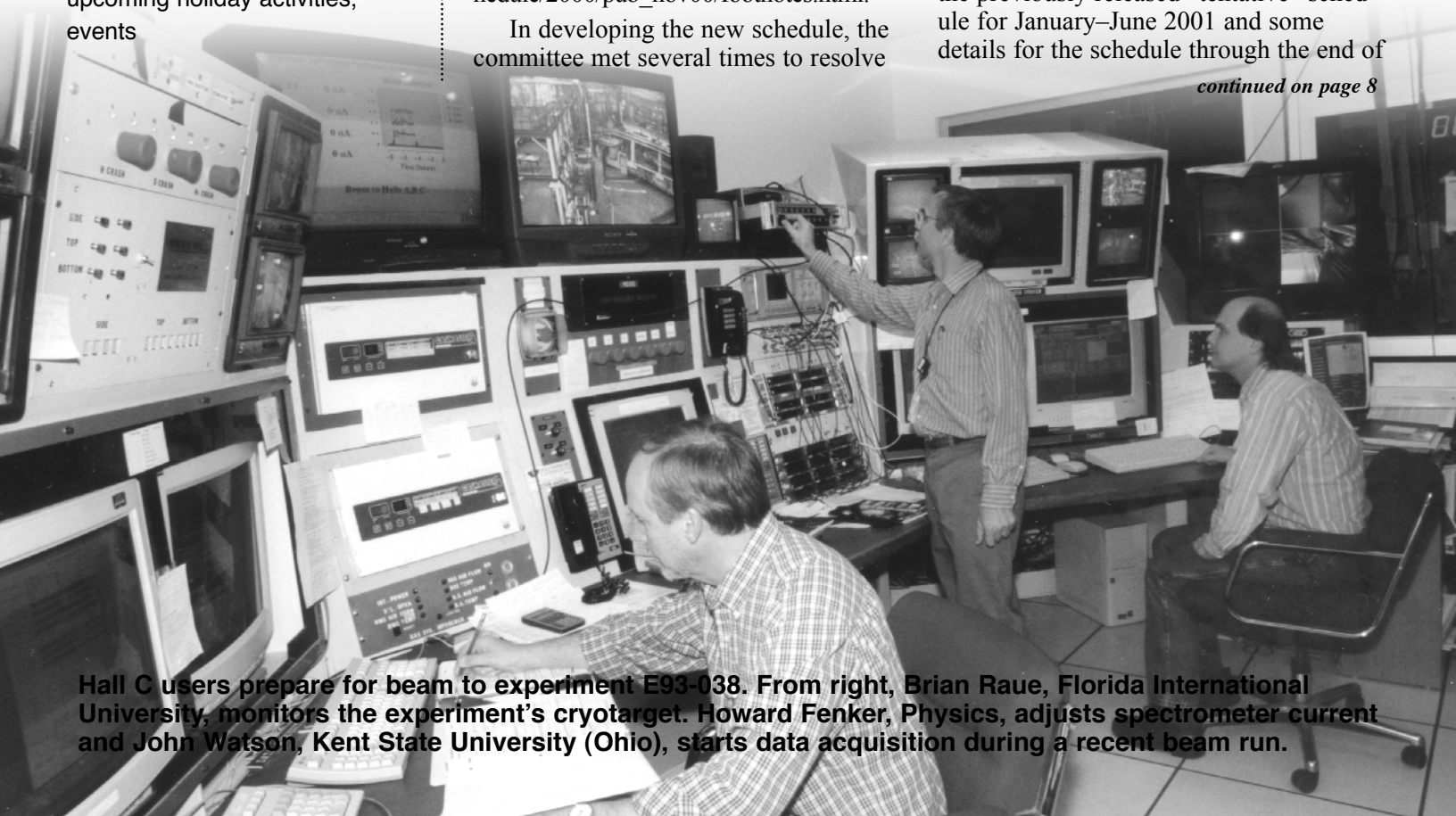


Hall C users prepare for beam to experiment E93-038. From right, Brian Raue, Florida International University, monitors the experiment's cryotarget. Howard Fenker, Physics, adjusts spectrometer current and John Watson, Kent State University (Ohio), starts data acquisition during a recent beam run.

E93-038 underway

New experiment gears up in Hall C

by James Schultz

Editor's note:

G_E^n is the technical representation for this experiment. In conversation it is said GeN. To keep the conversational flow of the story, GeN is used.

In April 2001, Jefferson Lab's "A list" of physics experiments will become one shorter. In Hall C, technicians spent the summer installing Experiment 93-038 – known more colloquially as GeN or the investigation of that quantity known as the electric form factor of the neutron. Physicists started commissioning on October 20 with the experiment scheduled to run through April 8, 2001. One hundred twenty days of beam time have been planned.

The experiment involves more than 90 scientists from 22 institutions in the United States and abroad. Domestic participants include researchers from the Massachusetts Institute of Technology (MIT), Duke University and the University of Maryland. From abroad come representatives from the University of Bonn in Germany, Kyungpook University in South Korea and the Yerevan Physics Institute in Armenia. Of the more than 118 experiments so far approved by the JLab Program Advisory Committee, This experiment is one of eight given an "A" scientific rating.

"This experiment is probably one of the most important the Lab could undertake," says Richard Madey, experiment spokesperson and University Professor Emeritus of Physics at Kent State University. "Understanding the charge structure of the neutron is essential to nuclear physics theory. This experiment should indicate which, if any, of the current quark models are correct."

This experiment aims to reveal much that physicists don't know, or are forced to surmise. GeN is a fundamental quantity necessary for detailed microscopic calculations of electromagnetic nuclear-structure functions for testing the evolving, constituent quark models of particle structure; and for extraction of the "strangeness form factors" from parity-violating experiments. Because the strange form factor of the nucleon characterizes the content of strange quarks within the atomic nucleus, learning more about the particulars of neutron structure is crucial to a deeper understanding of the basic structure of matter.

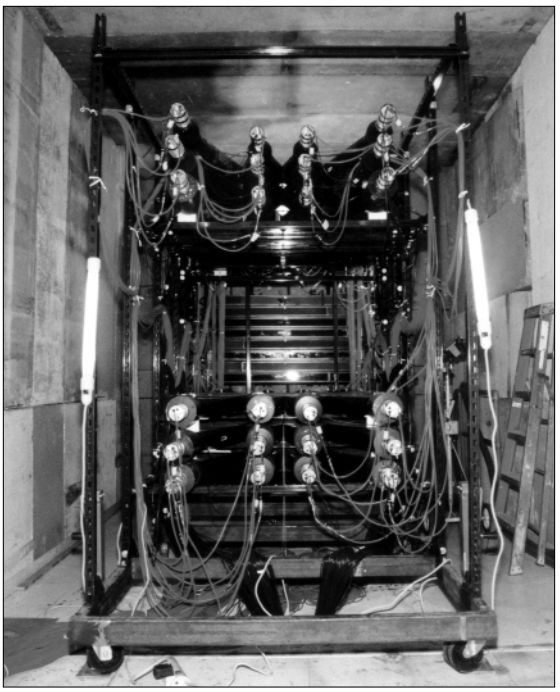
Researchers will be using a new kind of detector called a "neutron polarimeter" as part of the experiment. (The polarimeter was designed and configured specifically for this experiment. It was calibrated and tested in 1994 at the Saturne National Laboratory in Saclay, France.) When a polarized electron interacts with an unpolarized neutron in the target of liquid deuterium – an isotope of hydrogen – the electron transfers polarization to the neutron. The polarimeter is then able to measure neutron polarization, which carries information on the neutron's electric form factor. The distribution of electric charge within the neutron thus can be extracted and quantified. The end result, scientists hope, will be unprecedented insight into the neutron's inner workings

"We already know something about the spatial orientation of the quarks within the neutron. We know the positive charge is at the neutron's center and the negative charge is some distance away," explains Madey. "But the net charge is zero. The precise mechanism of the neutron's structure is what's baffled those who've studied such matters. This is one more level of understanding."

This experiment was preceded by a similar effort undertaken in the 1980s by Madey and his Kent State colleagues at a Massachusetts Institute of Technology (MIT) research facility outside Boston. "Then, we pushed everything to the limit," Madey recalls. "The accelerator, the target, the electronics were all on the edge. But we demonstrated we could do it."

By 1984, Madey had begun to literally scribble down the outlines of a more sophisticated study. Formal proposals followed, and in 1989 follow-on experiments were accepted by both MIT and JLab. The debut of the JLab accelerator provides enhanced opportunity for more intense neutron scrutiny than would otherwise be the case. Using CEBAF, researchers have a continuous electron beam with a performance advantage approximately 125 times greater than what was possible during the pulsed-beam operation at the MIT accelerator.

Madey admits to some satisfaction that, after more than 15 years of preparation, GeN is up and running. "It's been a long, long haul," he says. "I've been looking forward to this experiment. We should be able to shed some light on some long-asked questions. We'd like to nail down at least a few answers."



The neutron polarimeter (rear view) brought in and installed for Experiment E93-038.

In Memoriam

JLab mourns loss of William J. Kozma

William J. (Bill) Kozma, Operations Support Manager for the Accelerator Division and member of the Jefferson Lab family since 1989 died on October 8. Kozma, 55, succumbed from complications after a heart transplant at Duke University Hospital.

Bill came to JLab after 22 years of service as an Air Force fighter pilot. His military career took him to Southeast Asia twice during the Vietnam War and also included assignments in Germany, Thailand, Korea, Arizona, Louisiana, and two tours of duty at Langley AFB in Hampton. He and his wife Judy liked Virginia so much they "retired" here.

Bill Kozma was a man who touched many lives. He is remembered as a caring husband, devoted father and humanitarian interested in the well being of those in need of educational, work and housing opportunities. He did extensive community-service volunteer work. Kozma was a Chair on the Housing Partnerships, Inc., Board of Directors and an active volunteer. The Housing Partnership is a non-profit organization that assists people in need with home repairs.

He developed a successful partnership between JLab and the Newport News Redevelopment & Housing Authority and created the Lab's welfare-to-work, job training program. He also performed numerous services during the community's annual United Way Day of Caring.

During the weeks Kozma fought for life, his good friend and former Air Force commander, Chuck Higgins, kept Bill's friends, here and around the world, updated on Bill's condition.

Bill is survived by his wife, Judy, and sons, Jason and Andrew, and many relatives and friends.

A memorial Mass was celebrated for him on Oct. 13, at St. Joan of Arc Catholic Church in Yorktown. A reception for family and friends followed.

Memorial donations may be made to Housing Partnerships at P.O. Box 441, Williamsburg, VA 23187; or the Bill Kozma Memorial (Yorktown High School) Soccer Scholarship, in care of First Union Securities, P.O. Box 12026, Newport News, VA 23612-9982.

Below is Chuck Higgins' last e-mail message to the many people that hoped and prayed for Bill, Judy, and his family during Bill's battle for life.

Bill Kozma (left) with JLab Director Hermann Grunder during the 1999 Service Awards ceremony. Bill was being recognized for 10 years of service to the Lab.

Friends,

I know that many of you were at the funeral mass today for Bill.

However, many of you were not able to attend, and I wanted to bring you to closure on this series of events. The Mass was a beautiful ceremony that honored and celebrated Bill's life. There were easily 250-300 people there to support the family, meet other of his friends, and pay their respects to their friend Bill.

Judy, Jason, Andrew, David (Bill's brother), and Ellie (Judy's sister) all spoke, and I know that in some way Bill was there just bursting with pride at their warmth and composure. Rest assured that even though many of you were not able to attend in person, your presence was felt. From the many friends in England that expressed so much concern during Bill's illness, to the Osborne family in Australia that called the night before the Mass to ensure their wishes were conveyed, and to all of you across the nation that had bonds with Bill, we knew that you were there in spirit. We could feel it.

After the Mass there was a reception in a beautiful, bright, open atrium area of the church. Bill's friends gathered and talked about Bill, where we met him, stories about things he did, and what a great friend he was. What struck me was not the consistencies in the stories (and of course there were many), but the differences. Bill was many things to many people. He had a quality that we should all envy, the ability to meet people where they were, not where he was. As a result, we all knew him in slightly different ways, each special, each unique, each representing a very close personal friendship. That was Bill's strength, and a challenge for all of us to emulate. He clearly taught us that the value of our lives is in the relationships we build.

I feel as though I have somehow inherited a great group of friends, through Bill, as I sent out these many "Kozgrams." Thanks for the many responses, and the caring thoughts that you have funneled through me to Judy and the family. We have all become a lot closer through this. I suspect that Bill is smiling.

Regards,
Chuck

Into the machine

On watch at the Counting House

by James Schultz

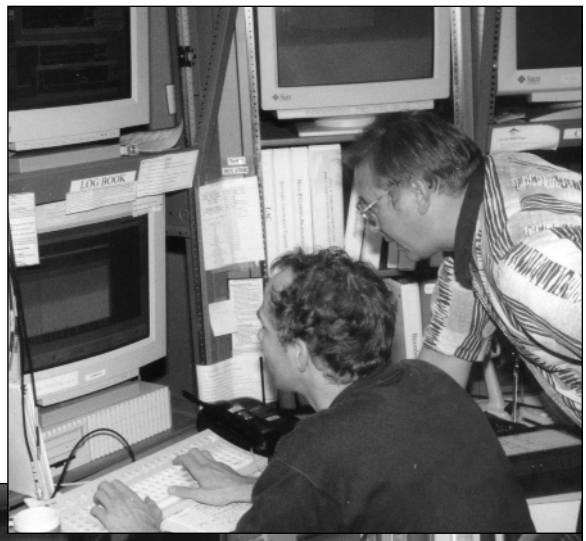
On a sunny day, with puffy clouds adrift in an azure sky, young and old alike have been known to lie on lawns to survey the cumulus. Far less substantial than clouds, but no less real, are the marks of subatomic collisions generated during JLab physics experiments. But because each experiment rises or falls on the basis of the quality of data collected, casual backyard counting is out of the question. State-of-the-art watching is required.

For researchers on duty at the Lab's Counting House, the first order of business is to insure that a given experiment is running smoothly. Thousands of people-hours and hundreds of thousands of dollars over years can be devoted to carefully planning and setting up one-of-a-kind investigations. If equipment fails or the accelerator's electron beam is interrupted, crucial observations could be compromised, even lost. Monitors must respond quickly, correcting the simple problems and summoning help for those difficulties with no easy fix.

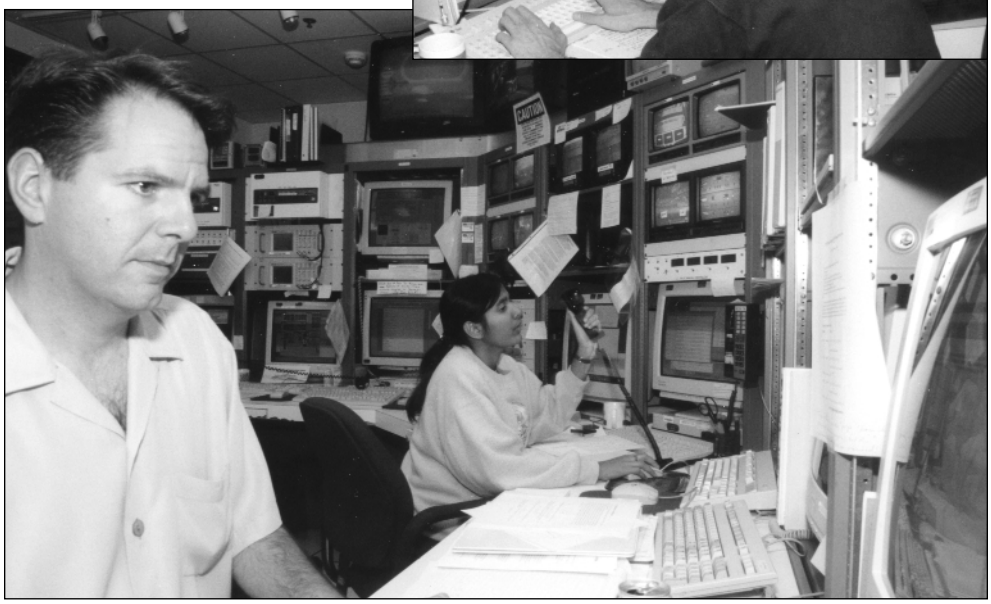
"In the good old days of simple electronics you actually had real counters. Occasionally you'd stop everything and write down the contents of those counters," recalls Bernhard Mecking, Hall B leader in the Lab's Physics Division. "Now we monitor computers. If something breaks, you want to find out right away, rather than six months later when you're analyzing data and none of it is any good because of a malfunction."

Geographically, the Counting House is located as close as possible to the Lab's three experimental halls, to keep physical interconnections for data monitoring as short and maintenance-free as possible. Its two stories are subdivided into office space above and, on the ground floor, a trio of working areas – one for each of the three halls.

For safety reasons, a minimum of two monitors are required at all times during an experiment's duration. Given that beam time is expensive and must be strictly scheduled, a particular study can run 24 hours a day for several weeks. Research teams must therefore expect that some of its members will pull long monitoring shifts, especially at critical times during a run. So, though modest, amenities are present in each of the three working areas: among them are a refrigerator, microwave oven and coffee machine.



From Hall B's control room in the Counting House, Alexander Vlassov (right), from the Institute for Theoretical and Experimental Physics (Moscow, Russia), checks out beam availability with Maurik Holtrop, University of New Hampshire.



In the Hall A control room one of the spokepersons for experiment E99-007, Ed Brash (left), University of Regina (Regina, Canada), analyzes data while Krishni Wijesooriya, a postdoctoral candidate from Argonne National Lab prepares to call the Machine Control Center.

"You can't leave and go to a restaurant for a nice dinner," Mecking points out. "You have to bring your own food. You'll be living there for the duration of your shift."

No Heroes Needed

Shift times in recent years have been made slightly easier by the gradual development of software upgrades that have automated observation and control, and adoption of graphical user interfaces, or GUIs. The programs permit shift watchers to remotely control certain devices associated with experiments. The status of 50 different subsystems can be ascertained by glancing at the computer screens, with yellow or red rectangles indicating a problem. Additional, easy-to-read indicators may be added in the future.

Each experimental hall has its own operators' manual online and in paper form. Documentation is particularly important to inexperienced shift sitters, who may come from all over the world to monitor JLab equipment while their experiment is running. Garden-variety problems can and often do occur. "Very primitive things can happen," Mecking says. "An air compressor can fail. Cooling may not be sufficient. Electrical supply can be a problem."

Under normal conditions, shift monitors can remotely remedy malfunctions.

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Alarm notification system comes on line across campus

Jefferson Lab's electronic access control system is nearing completion, according to Dave Kausch, system administrator. The fire alarm portion of the Central Alarm Notification System (CANS) has been functional for several months and is working well.

The system is currently being prepared for smooth operation when the access control function is returned to service by the end of this month (November), Kausch reports.

Trailer City began evening and weekend operation with the new system in early November. The Experimental Equipment Lab (EEL) began using the electronic access control system during mid-November.

"This means no more waiting for a security guard to let evening, weekend and holiday workers into these buildings," points out Kausch. "If you have your JLab ID card and you have completed SAF 100 (EH&S Orientation) and your division has granted "Campus After Hours" building access you can enter and exit these buildings without a key and without signing in on a clipboard after hours." A Stock Room account is needed before an individual's JLab ID card will open the Stock Room door.

The Hall C card readers and door locks have been functioning 24-hours-a-day in the new system since the September shutdown. Halls A and B will start using CANS soon. VARC, CEBAF Center and the ARC will return to electronic access service by the end of November.

Don't toss em

Donate used greeting cards to St. Jude's Ranch

Holiday greeting cards: the annual tradition of sending and receiving them is nearly here. And after the holidays most of those pretty cards wind up in the trash.

There is an alternative. For the past two years a small group of JLab volunteers have been collecting used greeting cards of all types and sending them to St. Jude's Ranch for Children.

St. Jude's is a nationally recognized nonprofit organization that focuses on the needs of abused, abandoned and neglected youth of all faiths and races.

Thirty years ago, founder Father Ward started recycling holiday and greeting cards as a fund-raising program. The children trim the cards and glue them onto pre-printed card backs, which are then sold to the public. Each child is paid 15 cents for each card he or she makes. The money the children earn is divided among their education funds, savings, spending money and group outings.

To purchase Born Again Cards write St. Jude's Ranch for Children, P.O. Box 60100, Boulder City, NV 89006-0100. The cards are sold in packages of 10 (identify the type of cards you wish to buy: Christmas, Hanukkah, New Year's, birthday, Mother's Day, Thanksgiving, or even customized orders), or call 1-800-492-3562 to place credit card orders. The St. Jude's Ranch web site is at www.stjudesranch.org.

Betty Beeler, a Lab co-sponsor for this program, encourages everyone at the Lab to "bring in your used holiday and greeting cards and put them in the marked drop boxes." The ranch only uses the fronts of the cards. The backs will be removed. Also, make sure to remove personal letters and photos.

Blue collection boxes are located in the CEBAF Center second-floor reception area, VARC lobby, Machine Control Center, Applied Research Center 7th-floor copy room and Trailer City. Due to recycling needs, these locations will be changing in the near future.

This program is a delightful approach to reducing landfill waste while contributing to the needs of a very special charity, points out Beeler. For more information about this program, e-mail Beeler (beeler@jlab.org) or contact Yvonne Casalino (casalino@jlab.org, ext. 7844).

To date the Lab has sent more than 27,000 cards to benefit St. Jude's youth.

Into the machine. . .

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But once the unusual occurs, time is of the essence. According to Mecking, the complexity of the system is such that the two or three individuals on shift are not likely to be able to effectively deal with most unusual situations.

"The faster you call for help, the better," he asserts. "Trying to play the hero and fixing it yourself is not a good idea. We have experts on call whose job it is to respond quickly and take care of whatever problems arise."

One thing that watchers don't need to worry about is the flow of data from hall to Counting House and then to the Lab's Computer Center. Each hall has two large hard drives located at the Counting House, where data is transferred in a two-step process over high-capacity optical fiber. Once the first hard drive at the Counting House is full, the second begins accepting data. As the second gathers information, the first hard drive begins to upload experimental data for permanent storage at the Computer Center. This data storage process goes on for weeks or even months at a time.

The Counting House is a 'hub' where state-of-the-art equipment, researchers and the Lab's staff come together to perform groundbreaking physics experiments.

Something for everyone!

JAG announces holiday activities, events schedule

The holiday season is nearly here, and with it the Lab's annual holiday events and activities. This year's line-up includes a toy drive, children's party, adult party, Christmas tree decorating, and the always-popular office decorating contest.

Beginning Nov. 27, donation drop boxes for the Marine Corps' Toys For Tots program will be located in the CEBAF Center reception area, VARC reception area, Applied Research Center (ARC) 7th floor, Trailer City, Machine Control Center (MCC), Test Lab and the FEL User Facility. The boxes will be in place through the morning of Dec. 16. The new, unwrapped toys will be presented to a member of the U.S. Marine Corps during the children's holiday party on Saturday, Dec. 16.

Young and young-at-heart enjoyed a visit from Santa Claus during the JLab Children's Holiday Party last year.

The JLab Activities Group (JAG) is looking for volunteers to help decorate the Lab's Christmas tree in the VARC lobby at 3 p.m. on Monday, Nov. 27. That's also the date when staff and users may start decorating their offices/cubicles and doors for the holiday decoration contest. Members of the JAG will judge all entries Dec. 19. The contest is open to all Lab employees and users, says Susan Esp, JAG chair. However, decorations may not obstruct doors or hallways, and if you use lights or moving displays, please turn them off when leaving work, she reminds. E-mail Esp (esp@jlab.org) to enter the contest.

Santa Claus has assured the JAG that he will visit this year's Winter Wonderland Children's Holiday Party, set for Saturday, Dec. 16 from 10 a.m.–2 p.m. at the VARC. The event will include games, crafts, activities, prizes and refreshments. The children of all Lab employees and users are invited. Each family attending the party is asked to bring a finger food or breakfast snack to share and a new, unwrapped toy for the Toys For Tots box. The JAG will provide fruit juice, coffee and hot cocoa. Most activities will take place in the VARC lobby. Refreshments will be in room 55, a children's video will be shown in room 47, and the grassy area in front of the VARC will become home to Cameron the Caterpillar — a children's walk/crawl through activity for children 10 and under. Santa will be available for photos with the children.

Betty Beeler and Carrie Nichols, of the Environmental, Health & Safety Reporting office, are coordinating the children's party. They are seeking volunteers to help with registration, crafts, games, and clean up, and to assist Santa. E-mail them (beeler@jlab.org or cnichols@jlab.org) to volunteer.

The adult holiday party is planned for Saturday, Dec. 9 at the Chamberlin Hotel on Ft. Monroe (Hampton) from 6:30 p.m.–1 a.m. The evening will include a buffet, cash bar, prize drawings and a DJ spinning tunes. The buffet will include Virginia baked ham, London broil w/mushroom Bordelaise, sliced roast beef, chicken breast w/Chardonnay sauce, tossed house salad, pasta salad, red bliss potatoes, rice pilaf, broccoli spears, vegetable medley, chef's choice dessert table, rolls, coffee and tea. Tickets will go on sale at the CEBAF Center reception desk and through JAG members. Ticket price hadn't been determined at publishing time. Watch the JAG bulletin boards and JLab News web page for more information.

Recreation committee seeks volunteers for coming year

The Jefferson Lab Activities Group (JAG) is still looking for a couple more individuals interested in joining the committee. The JAG seeks new volunteer representatives from across the Lab (and all departments) each year at this time. The committee sponsors a variety of recreational events — including the annual parties, team sports, the Run-A-Round and special interest clubs — for Lab employees and users. Anyone interested in being on the committee for the coming year may contact Susan Esp, the outgoing JAG chair, at ext. 7520 or e-mail esp@jlab.org.

Milestones
for October 2000

"Milestones" highlights the achievements of JLab staff and users, full-time and term new hires, separations and retirements. To submit staff or users' promotions, special honors and awards send information to magaldi@jlab.org or call ext. 5102.

Hello

Theresa Foremaster, Executive Administrator, Director's Office

Denwood W. Insley, Electronic Assembly/Repair Technician, Physics Division

Valerie A. James, Division Support Admin. Assistant, Accelerator Division

James E. Jones, FEL Electronics Technician, Accelerator Division

Cheryl H. Knight, Compensation & Benefits Administrator, Administration Division

Deborah S. Lodding, Administrative Assistant, Accelerator Division

Sherri L. Wood, Administration Division Administrator, Admin. Division

Goodbye

Stephen L. Bueltmann, Hall B Postdoctoral Fellow, Physics Division

Leona T. Davis, Finance Dept. Secretary, Administration Division

Randolph T. Hall, Database Programmer/Analyst, Physics Division

Diana S. Springfield, Document Control Coordinator, Accelerator Division

Public Affairs offers copies of new Lab video

The Lab's new informational video, *Jefferson Lab and the Mystery of Quarks*, is completed. The Public Affairs office is distributing one copy to each member of JLab's staff for use in answering the questions all your family, friends, neighbors and business associates ask: "What do you do over there anyway?" and "What is under all of that dirt I see from Jefferson Avenue?" Stop by Public Affairs Manager Linda Ware's office in CEBAF Center, room B209, and get your copy. Everyone is asked to sign for his or her copy.

Ware was notified in October by the film's developer, Tim Farrow of Tim Farrow Productions that the JLab film has won a bronze award in the Design Council of America film and video competition. Farrow describes the award as "prestigious" and explained that all entries are judged against an objective standard of excellence, rather than against each other. "Rather exciting," he wrote to Ware, "I think…it will be the first of many such awards. Congratulations!"

Public Affairs is very grateful for the time and cooperation of all the Lab staff who helped make the video a reality. "Filming the raw footage took weeks early this year, but everyone worked hard to help us tell the JLab story, and it shows in the video," Ware said.

Thanks! Readers catch headline error

There was an error in the Fall 2000 issue of *On Target*.

The headline on page 4 should have read: CEBAF exceeds 6 GeV, Accelerator surpasses original design specification by 50% (not 150%). Or, the headline should have read: CEBAF hits 6 GeV, achieves 150% of original design specification.

Blood Drive nets new high of 84 units

The Red Cross blood drive on Oct. 11 netted 84 units. That was a great turn out, says Vicki Barnett, blood drive coordinator and Medical Services secretary.

In addition, 31 people entered the National Marrow Donor program.

"I want to thank everyone that participated in the blood drive and joined the marrow donor registry, Barnett adds. "I hope to see everyone at our next blood drive scheduled for Jan. 25.

At a Glance
Calendar of JLab activities and events

Nov. 23: Thanksgiving Shutdown

Nov. 24: Holiday (Accelerator down, Hall maintenance)

Nov. 27–Dec. 16: Toys for Tots donation boxes in place around Lab. Seek new, unwrapped toys for children in need.

Nov. 27: Trimming the JLab Christmas tree, 3 p.m. in the VARC lobby. Also the day Lab staff & users may begin decorating their offices, cubicles & doors for the JAG holiday decorating contest. Judging will take place Dec. 19. E-mail Susan Esp (esp@jlab.org to enter contest).

Nov. 28: Service Awards, retirement recognition and State of the Lab Address, 2 p.m. in the CEBAF Center auditorium.

Dec. 1&4 (Fri. & Mon.): JLab hosts the American Physical Society Division of Nuclear Physics (APS/DNP) Town Meeting on Electromagnetic & Hadronic Physics. The Lab anticipates 150-175 additional people on site. For your convenience we suggest the following:

Parking will be on a first-come, first-serve basis. Overflow parking will be in the field next to the Residence Facility and behind the Test Lab. Those wishing to park near CEBAF Center may want to arrive earlier than usual.

The cafeteria will be set up to handle additional lunch customers with ready-to-go selections, extra stations and extra

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Committee announces schedule. . .

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2000 were modified to provide additional time for the recently started Experiment E93-038 in Hall C. There was a rupture in the target cell used for this experiment just as final preparations were underway for commissioning. Repairs and a thorough review of the target failure resulted in a loss of one month of planned running. Since the experiment required a major installation effort, the committee decided to take the unusual step of adjusting the run schedule to restore the lost beamtime. Remounting the experiment at a later date would have simply been too inefficient, the co-chairs wrote.

Second, the winter shutdown for 2000–2001 has been shifted from the traditional late December–January period to April 2001. This shift was made to ensure that E93-038 received its allocated beamtime and it and eg1 in Hall B could complete data-taking before the down period. This move will allow the Lab to most efficiently use the time by reconfiguring the halls and performing accelerator maintenance simultaneously.

And third, in an effort to optimize polarized beam running, the committee has scheduled many weeks of operation at "unusual" energies that are consistent with good polarization in multiple halls.

According to the committee's note, the three-week accelerator maintenance cycle started last year has proven successful and will be continued in 2001 and extended to a four-week cycle when feasible. This change should offer improved opportunity for accelerator and injector related maintenance and should result in even higher equipment availability for physics.

At a Glance. . .

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seating. To avoid the crowd, people may want to visit the cafeteria at 11:30 a.m., as the Town Meeting won't break for lunch until after 12.

Dec. 4: Farewell Dinner & Reception for Hermann Grunder starting at 6 p.m. at the Omni Hotel, Newport News.

Dec. 9: Adult Holiday Party at the Chamberlin Hotel, Ft. Monroe (Hampton, Va.) 6:30 p.m.–1 a.m. Tickets to go on sale by early December.

Dec. 16: Winter Wonderland Children's Holiday Party From 10 a.m.–2 p.m. in the VARC.

Dec. 23, 2000–Jan. 1, 2001: JLab Closed

Jan. 25: Red Cross blood drive at JLab.

ON TARGET

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