INTERACTION POINT

November 21, 2003

GLAST Milestone: Integration and Testing of Engineering Models

By Larry Wai and Anna Gosline

The Large Area Telescope (LAT) project, a key component of GLAST, recently sailed through its first phase of testing with great success. Conducted at SLAC in conjunction with NASA, this milestone brings physicists one step closer to uncovering the mysteries of the gamma ray sky. The project is an exciting new horizon for particle physics that could lead to discoveries of cosmic proportions.

"The LAT detector will be the world's most sensitive and massive space-based gamma ray telescope when it is launched in 2006," said LAT principal investigator Peter Michelson (Stanford University).

The energy range of the LAT will be unparalleled—from 10 MeV to over 100 GeV—and much more sensitive at detecting and deciphering high energy gamma rays than any other instrument in space. This superior range and sensitivity will allow scientists to answer previously unimaginable questions.

"GLAST science topics include study of the most powerful accelerators in the universe, active galactic nuclei, as well as the potential discovery of the elusive nature of Dark Matter," said Steven Kahn (KIPAC).

Before it can take to the sky, SLAC researchers have to prove that it will work seamlessly in the laboratory.

Testing Detector Prototype

"Early identification of problems is crucial in the overall process of putting a working instrument into space," said Tune Kamae (AG). "Unlike traditional accelerator based experiments, GLAST will be totally inaccessible for repair after launch. This imposes extremely rigorous standards for the integration and test phase for the detector."

Under the management of Elliott Bloom (EK), the LAT Integration and Test (I&T) Subsystem team successfully assembled and tested a small prototype of the LAT detector. According to Elliott, "The testing went beautifully and we are excited by the results. The whole team worked really well together and achieved a great deal."

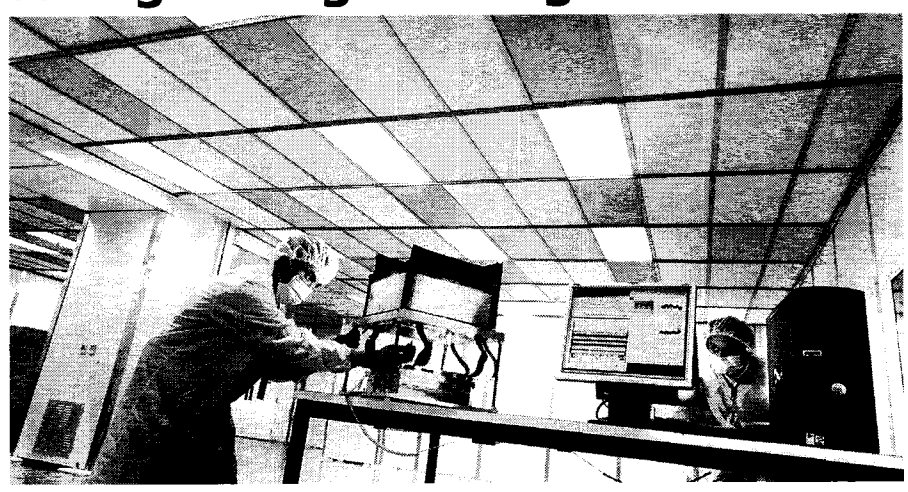


Photo by Peter Ginter

Clean room where the LAT team tested the integrated detector with cosmic ray muons as well as gamma rays.

These hardware tests focused on two components of the LAT detector: the silicon strip tracker and the cesium iodide calorimeter. The tracker, from Instituto Nazionale di Fisica Nucleare (INFN, Italy), measures the trajectory and ultimately the source of celestial gamma-rays. The calorimeter, from the Naval Research Laboratory in Washington, D.C., measures the energy of gamma rays. These two components were combined to create an integrated detector, working together to decipher fingerprints of gamma rays.

Tucked away in a 6,000 square foot clean room, the LAT team tested the integrated detector with cosmic ray muons as well as gamma rays generated by a Van De Graaf accelerator, originally used to test

(See GLAST, page 2)

LCLS: Faster with Foil

By Anna Gosline

Before it's even built, SLAC physicists are making it better. Computer simulations have shown that by using a cleverly placed piece of slotted foil, the Linac Coherent Light Source (LCLS) will be able to produce brilliant x-ray pulses that are a staggering 1 femtosecond (quadrillionth of a second) in duration.

This is the latest achievement in a long line of research completed in anticipation of the LCLS facility, due to start construction in 2006. The one femtosecond x-ray pulse length will allow physicists to see the fleeting movement of matter at subatomic scales. "It's the holy grail of light sources," says SLAC researcher Paul Emma (ARDA), who first imagined the foiling plot.

Without the foil insert, the x-ray pulse design standard is 230 femtoseconds; fast enough to record the making and breaking of chemical bonds and atomic scale processes of liquid flow, melting and freezing. But there are two reasons to push for even shorter pulses.

Like the shutter speed on a camera, pulse length dictates the speed of movement that can be observed by a light source. "The shorter the pulse length the better the resolution. You cannot observe phenomena that occur in the 1 femtosecond time scale with a 200 femtosecond pulse," said Max Cornacchia (ASD), who coordinated the thin foil research for LCLS.

Long pulses of high energy radiation also have a tendency to destroy the molecules they are trying to illuminate. Ultra-short pulses will allow researchers to use bright light to

(See LCLS, page 2)

Phinney Receives 2003 Marshall D. O'Neill Award

By Anna Gosline

Nan Phinney (NLC) was recently honored by Stanford University with the 2003 Marshall D. O'Neill Award. This award honors exceptional Stanford employees who have made enduring contributions to the university's research enterprise—and Phinney certainly fits the bill.

Photo by Diana Rogers

Award Recipient Nan Phinney (NLC)

For more than 22 years Phinney has been providing steadfast leadership to the Stanford Linear Collider (SLC), and has subsequently brought her hard-won wisdom to the Next Linear Collider (NLC) project.

"I think that it is wonderful that Nan has won this award," said Burton Richter, director emeritus of SLAC. "She has done so many wonderful things for this laboratory, particularly her work on the SLC."

After earning her doctorate in physics from the State University of New York in Stony Brook, Phinney worked at CERN for nine years. She came to SLAC in 1981 as one of the first physicists hired to work on the ambitious SLC. This was the first prototype of a new generation of electron-positron colliders built to produce and study the Z-boson.

"The SLC was brand new technology that turned out to have a lot of teething difficulties we didn't expect," said Richter, who appointed Phinney SLC Program Coordinator in 1990.

As the leader of the SLC, she was responsible for bringing the beleaguered project up to its design standards to produce large numbers of Z particles—a task she found both harrowing and rewarding.

"The SLC was a very exciting project," Phinney said. "It was the most difficult accelerator that anyone had ever worked on. It burned out a lot of people, but a whole generation of young physicists went on to become leaders in their field at accelerators throughout the world."

Phinney and her team of physicists worked seven days a week, even on holidays, to keep up SLC performance. She even offered pizza coupons to crews that delivered record breaking numbers of z-particles. "By the end, they had coupons for more pizza than they could ever eat," she said.

Under Phinney's guidance the SLC started to live up to its potential; she tackled problems bit by bit and never promised DOE review committees more than she could deliver. But when funding for the final SLC run was in doubt, Phinney strayed from her usually conservative estimates of SLC performance, confident in the enormous strides the team had made. "I basically promised DOE the moon and we delivered it; 250 z-events an hour or bust!"

Without the dogged perseverance of Phinney and her team, the SLC would not have contributed such advancements to physics. Experiments that used the SLC still boast the world's best measurement of the critical weak mixing angle. This measurement—which determines the degree of mixing between electromagnetic and weak forces—is a key parameter of the Standard Model for fundamental particles.

Since the final run of the SLC in 1998, Phinney has worked as the Deputy Leader of NLC Accelerator Physics, an international collaboration to build the next generation linear collider based on SLAC technology. Her experience with SLC has given her unparalleled insight into the design of this project as she continues to work for the future of linear accelerators and particle physics.

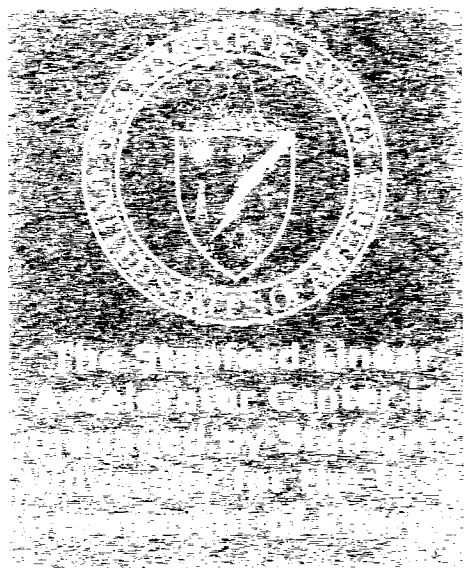
SLAC Scenarios Committee to Hold Town Meeting

To discuss preliminary findings.

Tuesday, November 25
2:30-5:00 p.m.
in Panofsky Auditorium

Reception follows in Auditorium Breezeway.

For more information, see:
http://www-project.slac.stanford.edu/lc/local/scenario



GLAST

(continued from page 1)

the Crystal Ball Detector in 1978. Huge samples of data were collected in shifts around the clock and on weekends.

Technicians Reggie Rogers and Jeff Tice (both REG) got their first taste of the rigors of space hardware manufacturing as they worked elbow-to-elbow with fellow aerospace veteran Mark Molini (REG). Rogers commented, "The manufacturing process for flight hardware is really impressive in the level of care and detail in documentation of the process. We've really got our work cut out for us for the next couple of years."

Accelerated Pace

Despite the recent frenzy of the I&T Subsystem, LAT Project Manager Lowell Klaisner (GLAST) expects the pace will accelerate as the research continues and more components of the LAT are integrated into the full detector. "The entire facility will be a beehive of activity when integration of the LAT is in full swing starting in the summer of 2004," Klaisner said.

Positive results at this early stage in development are promising for the overall success of the completed LAT. The testing of the integrated engineering models is a crucial first step towards manufacturing the entire LAT detector, which will be two orders of magnitude more complex. The hard work and dedication of the LAT team gives every indication that SLAC will rise to the challenge of space.

LCLS

(continued from page 1)

view complex molecules before they begin to break down.

The key to short x-ray pulses is compressing the electron bunches that create them. In the LCLS, bunches will be shortened with bunch compressors—3-sided detours in the linac studded with four magnets that pull the electrons temporarily off course—similar to a traffic circle. The slotted foil will take advantage of the bunch orientation within the compressor to weed out 99 percent of the electrons and produce an effective bunch only 1 femtosecond long.

As electron bunches proceed down the linac, they are pumped with 14.3 billion electron volts of energy on the rollercoaster of radio frequency (RF) waves. On their final dip towards the bunch compressor, the tail of the electron bunch has more energy than the head. Like a race car on the inside track, the higher energy electrons at the end of the pack take a shorter route around the bend and catch up to the leaders, making the bunch shorter.

The slotted foil is placed at the crest of the bunch compressor's bend, where the electrons are spread out perpendicular to their trajectory. A mere 100 million electrons in the center of the bunch successfully pass through the 250 micron (one millionth of a meter) slit in the foil; the other six billion electrons penetrate the foil and are subsequently too hot and scattered to produce x-ray radiation further down the line. It is this selective scattering that yields a 1 femtosecond slice of cool electrons, which then create the ultra-short x-ray pulse.

"Using a foil to scatter electrons is nothing new. We're just using the scattering in a different way," said Emma.

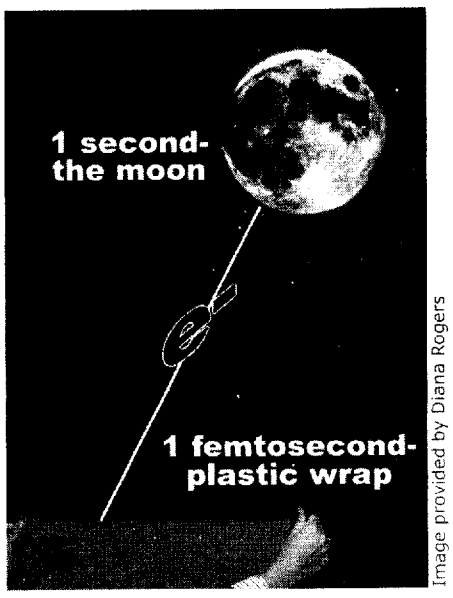


Image provided by Diana Rogers

How long is a femtosecond? In one second, an electron traveling near the speed of light can almost reach the moon. In one femtosecond, it can just pass through a sheet of plastic wrap.

Calculated Concerns

The LCLS is a delicate and sensitive machine, and researchers were concerned the proposed electron scatter could ruin the light source completely. Physicists didn't even know if a 1 femtosecond pulse was possible until Zhirong Huang (ARDA) demonstrated it with computer calculations. Using the foil can also introduce a wakefield, a nuisance effect created by electrons as they travel through the foil. Karl Bane (ARDA), Gennady Stupakov (ARDA) and Holger Schlarb (DESY) studied this potential problem and revealed that it would not interfere with x-ray production. Finally, Dieter Walz (EFD) showed that the foil itself could withstand continual electron bombardment.

Using the foil also comes at a certain cost. Paring down the effective electron bunch means that less x-rays are produced. Though the decreased intensity will not be a limiting factor for any planned experiment, researchers working on LCLS design are continually searching for ways to shorten pulse length while maintaining the full intensity.

With the continued ingenuity of SLAC researchers and support from DOE, LCLS will be an internationally unparalleled light source, giving scientists a look at the magic of matter at previously unimaginable scales.

Rigging Group Moves to EFD

By John Weisend

Photo by Diana Rogers

Riggers (l to r) Rich Torres, David Engesser, William Anderson and Percy Clay.

On October 1, the SLAC Rigging Group transferred from Site Engineering and Maintenance (SEM) to the Experimental Facilities Department (EFD). The Rigging group will continue to provide site-wide rigging support and assist with other EFD activities as appropriate.

To schedule rigging support, either contact Torres directly (Ext. 2134 or pager 377-9714) or through the SEM Service Desk (Ext. 8901, https://www-internal.slac.stanford.edu/sem/NonSafety).

San Francisquito Creek Council: 10 Years and Running

By Judy Fulton

Nestled in the foothills, SLAC is situated in an area that still has many of the characteristics the Spanish explorer Portola must have seen as he traveled down San Francisquito Creek to his first view of the San Francisco Bay. Meandering along the southern perimeter of SLAC (see map) on its way to the Bay, the Creek is one of the few remaining habitats for steelhead fish in the Bay Area, and many consider it to be a regional treasure.

The San Francisquito Creek Watershed Council coordinates stewardship of the Creek and its surrounding land. October marks the tenth anniversary of the Council.

Why the Council Exists

The San Francisquito Watershed encompasses an area of approximately 45 square miles, from the Santa Cruz Mountains to San Francisco Bay. The San Francisquito Creek starts at Searsville Dam and flows through multiple jurisdictions, separating two counties. It is regulated by multiple local, state and federal agencies. Because of the many stakeholders with various viewpoints, the Creek Watershed Council was created to better coordinate protection of the Creek and its watershed.

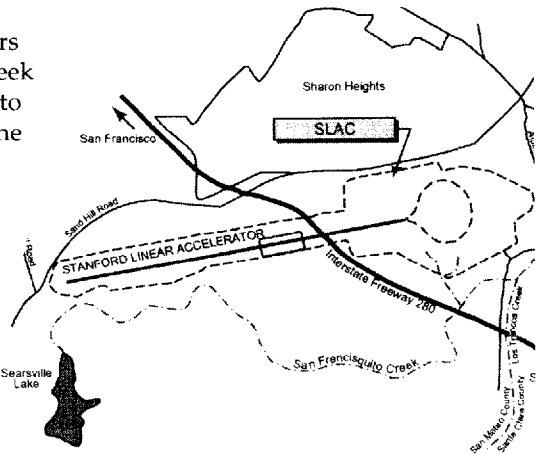
The Council's Mission

The Council works to preserve and enhance the Creek as a community resource. Representatives from public agencies, local governments, community organizations and individual citizens make up the Steering Committee. They come together on a voluntary basis to discuss creek-related concerns and to collaborate on creek and watershed stewardship projects.

The Council's primary goals are to improve water quality, to preserve and restore wildlife habitat, and to reduce flood dangers in the San Francisquito Watershed. The Council sponsors or coordinates on-the-ground restoration projects, water quality monitoring and visual surveys, watershed education, and policy support for local governments.

The Council's tenth year has been a busy one! Staff, members and volunteers continue to engage the community through outreach and education efforts, as well as focusing media attention on creek issues and restoring the watershed.

You can contact Outreach Coordinator Katie Pilat at 962-9876 Ext. 305 or e-mail: katiep@Acterra.org. For more information on the Watershed Council see: http://www.acterra.org/watershed



The San Francisquito Creek runs south of SLAC.

Compensation Services Basics

By Sandra Czech

Photo by Diana Rogers

Karen Lawrence and Carol Bechtel

SLAC's Human Resources department is comprised of five sub-groups, each with their own specialty. One of these is Compensation Services. The world of compensation can be mind boggling—what is the process, where do you begin and who do you talk to?

Compensation Services consists of two experts, Karen Lawrence (head) and Carol Bechtel, who have been working in the compensation field for over 15 years each. One of their many functions is to "establish and maintain appropriate salaries for staff at SLAC—a moving target," states Lawrence. The compensation department works closely with departments, supervisors and employees on job descriptions, reclassifications and reorganizations.

Due to the fact that job content, performance and market variable wages keep changing, Compensation Services reevaluates and analyzes jobs regularly. They also support managers to attract, retain and reward employees. In addition to their regular work, they work on large projects such as salary setting, surveys, and special studies, with both Stanford University and DOE as well as with other labs.

To find out more about Compensation Services, see: http://www-group.slac.stanford.edu/hr/c/

Employee Training Assessment: Why and How

By Anthony Jean-Baptiste

Proper training helps ensure worker safety. If people know how to do their jobs safely, accidents are less likely to occur, which is to everyone's benefit.

It's the Law and Common Sense

SLAC is required by federal, state and local laws to certify that all employees receive safety training appropriate to their daily work. To demonstrate compliance, we must record who has taken which training courses. Though this requirement to record and track training may seem like an administrative burden, consider this situation: someone in your work area is injured in a preventable accident. One of the first questions asked may be, "Was the person trained to do that work task?" No one should be in the position of working without proper training.

ETA: Here to Serve

To identify and track training, the ES&H training group developed a tool called the Employee Training Assessment (ETA).

The ETA enables supervisors and ES&H coordinators to assess which training courses apply to which employees. A web-based database tracks whether an employee has completed an assigned course.

Each employee's ETA must be updated annually.

Cheat Sheet for Updates

If you are responsible for creating or updating an employee's ETA, you need two things:

1. The list of required courses for the employee. The employee's supervisor or ES&H coordinator is responsible for providing this. They can use one of three forms:

- The Non-Hazard Worker ETA Planning Form: http://www.slac.stanford.edu/esh/training/eta/PlanNonHaz.pdf
- The Industrial/Radiological Worker ETA Planning Form: http://www.slac.stanford.edu/esh/training/eta/PlanIndRad.pdf
- The No Change Form: http://www.slac.stanford.edu/esh/training/eta/PlanShort.pdf

2. Permission to Update the ETA. If you need computer permission to update the ETA, please contact Training Coordinator Rod Hiemstra (Ext. 3662).

Once you have the list and permission, you are ready to update the web-based database. Follow these simple steps:

1. Go to the ETA's main page at http://www.slac.stanford.edu/esh/training/eta

2. Click on the last item in the left-hand navigation menu, 'ETA Database'.

3. Select criteria to search for a specific individual or group of individuals by department. For example, you can view all individuals in HR by selecting the 'OOC-Human Resources' option in the 'Department' box.

4. Click the 'Submit' button.

5. You will see all the individuals that fit the criteria selected in step three.

6. If there are no changes to an individual's ETA, simply check the box under the 'ETA No Chng' column, then click the 'Send' button at the bottom of the page.

7. If there are changes to an individual's ETA, click on the employee's 'Key number'.

8. You will see the individual's ETA with the assigned courses in the first section and all available courses listed beneath.

9. Make any necessary changes, and then click the 'Send Changes' button at the bottom of the page to save the changes.

For more information contact Terry Ash (Ext. 2688) or see: http://www.slac.stanford.edu/esh/training/eta

A Day in the Life of a Tour Guide

By Adam Edwards

It's a sunny California afternoon and I'm giving a tour of our beautiful site. General public tours are usually the most exciting to do; I like the random mix of people—and questions—that I encounter on these tours.

"So, what would happen if, say, I put my hand in the beam?" a visitor asks.

"You'd probably get a nice hole in it. But that would never happen here. It's very important that the beams don't collide with anything but themselves; that's why all the air is removed from the beam pipe."

There are those who wonder, "Why isn't anybody ever working wherever we go?" Others are curious about how things work: "Thanks, I've always wondered what..."

Many bring their own stories to share: "I was reading my paper this morning after breakfast and I was remembering reading in the paper years ago about this place opening. What year was that?"

Each tour has its own flavor, but inevitably eyes light up as the tour progresses and I tell each group about the work we do.

"Is that the accelerator there?" queries another curious visitor.

"Well, that's part of it. The actual beam is about 25 feet below ground. But to power the beam we use 240 klystrons. See the machines over there with the red cylinders? They are lined up above the beam in this two mile long shed which is, in fact, the longest building in the world. It's about 10 feet longer than Hong Kong's airport terminal!"

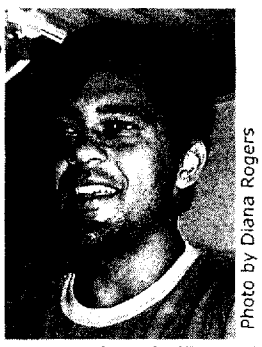


Photo by Diana Rogers

Adam Edwards (BaBar) enjoys guiding tours

Fascinating facts are good to know, but even better to share. Both the guides and the guided can enjoy the 'gee-wiz' aspect of it all.

The Public Affairs Office (PAO) runs tours of SLAC most days. The general tour gives guests an introduction to the Lab and then we usually take them from the Visitor Center to the Klystron Gallery, through the research yard and to the SLD detector.

Anyone can guide tours and it's always a fun experience! I'm a graduate student working with the BaBar collaboration, but I've found that people from all corners of SLAC give tours. Each of us gives our own spin and highlights our own interests. It's like giving a tour of our home and everyone just loves what we did with the rooms.

At the end of the tour, guests always say 'Thank You'. I feel good knowing that I've been able to share the marvels of science and may even inspire a new young scientist.

To learn about becoming a SLAC Tour Guide—or to host your own group of visitors—contact Emily Ball (PAO) in advance (Ext. 2620, emily.ball@slac.stanford.edu).

Holiday Party: Festival of Joy

By Linda DuShane White

Photo by Diana Rogers

Enoying a previous Holiday Party.

Come one, come all! SLAC's annual Holiday Party will be held Thursday, December 18, from 11:30 a.m. to 1:30 p.m. The aptly named Festival of Joy will feature a gourmet turkey luncheon presided over by caterer Jeff Machado.

You'll be treated to wonderful entertainment, too! Neil Calder (COM)—a gifted, humorous speaker—will be the MC. Keep your ears open for great jazz by the Leonard Webb Quartet. Feeling lucky? You may win a prize! You may choose to watch a movie in Panofsky Auditorium.

Sharing Spirit with Others

We can look forward to the Festival of Joy as a time when together we can celebrate our own good fortune and share it with others as well.

Share the joys of the season by participating in one or all of the charitable giving campaigns beginning on Monday, December 1 (see details below).

For more information on the Holiday Party, see: http://www-project.slac.stanford.edu/holidayparty

Sharing Campaign Drives:

12/1 – 12/18:
Second Harvest Food Drive

12/1 – 12/11:
Family Giving Tree Wish Drive

Watch for dates:
Blanket & Jacket Drive
PAFD Toys for Kids Drive

More of SLAC's History Now Available On-Line

By Jean Marie Deken

Photo by Richard Muffley

From the SLAC History Web Archive: W.K.H. (Pief) Panofsky, presenting plans for SLAC at a 1962 meeting of Stanford trustees.

The SLAC History Web site, maintained by the Archives and History Office, has recently been expanded to include the various SLAC histories that have been written to date with links to those available electronically. If you have trouble remembering a URL you can reach the new history list by typing the term 'SLAC history' in the search box at the top of the new ***SLAC Today*** Web site, and selecting the first link in your search result.

Histories that are now available on-line include Stanford Historical Society feature articles from *Sandstone and Tile* "Deeper and Deeper into the Atom" (1980); Pief Panofsky's "Big Physics and Small Physics at Stanford" (1990); and Bob Moulton's "Physics, Power and Politics—Fear and Loathing on the Electron Trail: An Eyewitness Account of the Campaign for Congressional Approval of the Stanford Linear Accelerator Center, 1959-1961" (2001).

The site also gathers articles that were previously available into one location. These include Doug Dupen's 1966 report on SLAC; "An Informal History of SLAC," a three part series from the early 1980's by Ed Ginzton, Pief Panofsky and Burton Richter; John Rees' "Colliding Beam Storage Rings: A Brief History" (1983), and SLAC's fortieth Anniversary Photo History. An important SSRL history, "Early Work with Synchrotron Radiation at Stanford," by Sebastian Doniach, Keith Hodgson, Ingolf Lindau, Piero Pianetta and Herman Winick (published in the *Journal of Synchrotron Radiation*, 1997) is also included.

The Archives and History Office plans to improve and expand the list over time with the goal of making it a complete resource on the published history of the Laboratory. Relevant publications not available electronically will also be listed, with suggestions as to how they may be obtained or borrowed. As always, your comments and suggestions for additions are welcome.

For information see: http://www.slac.stanford.edu/history/history.shtml

POLICIES AND PROCEDURES UPDATE

Departments on Annual Property Control Honor Roll Announced

BSD Division: BSD Division Office, Accounting, Budgets, Business Systems & Lab Support, Purchasing

Director's Office: Director's Office, Affirmative Action, Communications, Human Resources

ES&H Division: ES&H Division Office, Environmental Protection & Restoration, Knowledge Management, Radiation Physics, SHA

SSRL Division: Administration, Accelerator Systems, LCLS, SPEAR3

Research Division: Research Division Office, BaBar, Budget and Planning, Computation Research, Engineering, GLAST, Group A, Group B, Group C, Group E, Group G, Group K, PEL, SLD, TIS, THP

Technical Division: Technical Division Office, ARDA, ACD, Electronics & Software Engineering, Metrology

Physical Inventory Completed

Property Control has finished the physical inventory for Fiscal Year 2003. For the second year in a row, SLAC received an 'Outstanding' rating from the DOE.

To get on the honor roll, your department must account for 100 percent of property that is reported to the DOE. We applaud everyone who takes their property responsibility seriously.

Photo by Diana Rogers

Al Pacheco and Norman Queral (both PC) perform property control inventory.

To ensure that our database is as accurate as possible, please remember to tell us when you move or transfer property. It's easy to report equipment moves or new custodian assignment. Visit the Property page at: http://www-bis.slac.stanford.edu/main/property.asp

We are beginning to see many repeat performers on our Honor Roll. Will your Department be here next year?

Contact: Leslie Normandin, Property Control Manager (Ext. 4350, leslie@slac.stanford.edu)

New Banking Contract Starts December 1

The DOE has negotiated a new banking contract for SLAC. Starting December 1, SLAC-generated checks will be coming from the Union Bank of California. This does not affect the process by which you receive your checks, nor does it affect the direct deposit process for paychecks.

If you need to cash a SLAC-paid check, you can either visit your own bank or stop by any of the Union Bank branches in California, Oregon or Washington. The closest Union Bank branch to SLAC is at 716 Santa Cruz Avenue in Menlo Park.

Paycheck Direct Deposits

The Payroll Group is encouraging employees to sign up for a direct deposit to a checking or savings account (or both). For information on arranging for direct deposit, contact your payroll representative:

A-K Cory Perraras, Ext. 2303

L-Z Bernie Espiritu, Ext. 4233

For questions on banking, contact: Marty Sorensen, Accounting Department (Ext. 4240, mfsor@slac.stanford.edu)

Quick Survey: Caltrain Shuttle

The recent Caltrain fee and schedule changes could potentially affect SLAC employees. We would like to determine if changes to our shuttles to/from the Caltrain station are warranted. Please comment on the following questions and forward responses to Peter Budrunas (peterb@slac.stanford.edu, or send to MS 22) by December 5.

1. Would you prefer/use the shuttle if pick-up/drop-off were from the Menlo Park Caltrain station?

2. What times would be preferred for pick-up and drop-off from the Menlo Park Station?

3. Is a schedule change required for the Palo Alto station?

4. Any suggestions related to shuttle service provided to the Caltrain station?

Women's Interchange at SLAC (WIS)

Date: November 25
Time: Noon-1:00 p.m.
Where: Panofsky Auditorium

"Family Life with a Child Prodigy"

Kay Ganapathi (TDO) and Cindy Lowe (NLC) will share their inspiring stories about family life with a child prodigy, such as dealing with gifted daughters, siblings and time management.

Everyone is welcome—bring your lunch and bring a friend.

Upcoming Events

Fri. Nov. 21, 12:30 p.m.
SLAC, Orange Room, NOTE ROOM!
SLAC/STANFORD JOINT HIGH-ENERGY/ASTRO THEORY SEMINAR
Wynn Ho, Stanford U.
"Thermal Radiation from the Atmosphere of Magnetic Neutron Stars"

Fri. Nov. 21, 2:00 p.m.
SLAC, Orange Room, NOTE TIME!
SLAC ACCELERATOR SEMINAR
Ferdinand Willeke, DESY
"Synchro-Betatron Resonances in the HERA Lepton Ring"

Mon. Nov. 24, 4:15 p.m.
SLAC, Panofsky Auditorium
(Refreshments-3:45)
SLAC DEPARTMENTAL COLLOQUIUM
David Montague/Harvey Lynch, SLAC
"Boost Phase Interception"

Tues. Nov. 25, 12:30 p.m.
SLAC, Orange Room
SLAC EXPERIMENTAL SEMINAR
Hanna Mahlke-Kruger, Cornell U.
"Different Upsilon Resonances + Quarkonium Production +CLEOc"

Tues. Nov. 25, 2:30-5:00 p.m.
SLAC, Panofsky Auditorium
SLAC SCENARIOS STUDY TOWN MEETING
Various Speakers, followed by Open Discussion
"Scenarios for the Future of SLAC"

Mon. Dec. 1, 4:15 p.m.
SLAC, Panofsky Auditorium, (Refreshments-3:45)
SLAC DEPARTMENTAL COLLOQUIUM
Alan Nathan, U. of Illinois
"Physics of Baseball"

Wed. Dec. 3, 8:00 a.m.-3:00 p.m.
SLAC, Panofsky Auditorium Lobby
SLAC/STANFORD BLOOD DRIVE
Linda Ahlf, SLAC
Call Ext. 2354 for appointment—Drop-ins Welcome!

Fri. Dec 5, 12:00 p.m.
SLAC, Panofsky Auditorium
SLAC SPECIAL SEMINAR
Andy Coe, Stanford U.
"Upcoming Sand Hill Road Construction"

Dec. 8-12
SLAC, Panofsky Auditorium
SLAC PHYSICS MEETING
Marcello Giorgi, INFN-U of Pisa
BaBar Collaboration Meeting

Mon. Dec. 15, 4:15 p.m.
SLAC, Panofsky Auditorium
(Refreshments-3:45)
SLAC DEPARTMENTAL COLLOQUIUM
Rashid Sunyaev, Max Planck Inst.
"X-Ray Astronomy"

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MILESTONES

Awards

Phinney, Nan (NLC), the 2003 Marshall D. O'Neill Award
(*see article on page 1*)

Retired

Alvarado, Sal (SEM), 10/22
Truebenbach, John (ESD), 9/30
Wiedemann, Helmut (ASD), 9/30

Service Awards

5 Years
Buhrmaster, Gary (SCS), 12/01
Dusatko, John (ESD), 12/08
Greer, Julie (ASD), 12/06
Leyh, Gregory (ESD), 12/01
Lo, Man-Wah (SCS), 12/01
Rochester, Jane (SCS), 11/16

15 Years
Baldoza, Mer (ESD), 11/16
Farvid, Ali (MFD), 11/16
Lienhart, Timothy (ESD), 11/16
Nguyen, Sony (ESD), 11/16

25 Years
Baruz, Howard (MFD), 12/03
Holden, Gene (KM), 12/04

30 Years
Jobe, Jerry (BSD), 12/01

To submit a Milestone, see: http://www.slac.stanford.edu/pubs/tip/milestoneindex.html

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