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GLAST Management Visits Italy

By Lowell Klaisner



SLAC Director Jonathan Dorfan and GLAST/LAT Project Manager Lowell Klaisner visited INFN in Pisa, Italy in July. They met with the team working on the GLAST Silicon Tracker in the morning and toured their facilities. Dorfan met with the BABAR collaborators in the afternoon and then visited the facility where INFN is building the silicon vertex detector for CMS at CERN. They also met with Rino Castaldi, Director of INFN-PISA, and expressed their appreciation for this support and for the importance of the collaboration between INFN-Pisa and SLAC. INFN is an important collaborator on the GLAST project and to preparations for doing science with the instrument. The Tracker is a modular design of 16 individual towers, each with 19 layers of silicon.

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Some Assembly Required

By Shawne Neeper

As the summer winds down, BABAR



Galayda to Head New LCLS Division

By Shawne Neeper

To build the world's fastest and shortest-wavelength x-ray laser, SLAC created a new Linac Coherent Light Source (LCLS) Division and named John Galayda as its Associate Director. Galayda brings nearly three decades of hands-on experience with accelerator-based light sources to this project to create the first-ever linac x-ray laser.

After three years of planning the LCLS facility in collaboration with scientists at UCLA and Los Alamos, Livermore, Argonne and Brookhaven National Labs, Galayda will oversee the construction phase, guiding the laser's growth from the drawing board into a new national user facility, similar in operation to SSRL.

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scientists are wrapping up a record-making year and enjoying some well-earned down time. Operations ceased in PEP IR-2 (Bldg. 620) on July 31. But for engineer Jim Krebs (REG) and his team, the work has just begun.

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By Matt Howard

Have you ever wanted to work at home? CITRIX is your answer. It is essentially having direct access to your work computer at home. Anyone with a SLAC userid/computer account can use this extremely convenient way to access your computer desktop from home. All you need is a computer (Windows 95/98/ME/2000/XP, Unix, Linux, or Mac) with an internet connection.

CITRIX is a simple way to access your desktop, your drives and even your printers at work, all from home—or from any computer in the world with internet access—using a web browser with all the settings on your work computer.

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Collaborating on the project (left to right) Ronaldo Bellazzini (GLAST/INFN), Tracker Project Manager in Italy, Jonathan Dorfan (DO) and graduate student Nicola Omodei (INFN-Pisa) discuss prospects for GLAST science. (Photo by

The final assembly is being executed in a large, well-equipped clean room at INFN-Pisa. Ronaldo Bellazzini (BABAR/INFN) is managing GLAST activities in Italy. INFN recently completed testing of the over 11,000 silicon tiles, and will deliver the first flight tower to SLAC by this September.

Dorfan commented on the number and quality of people working on GLAST at INFN. Many young people have joined the effort. Recently, the engineering staff was expanded by drawing people from the University of Pisa School of Aerospace Engineering. In addition to their contribution to the Tracker, the INFN group has contributed to the GLAST Science Analysis Software and to the design of the first data challenge.

INFN has developed strong expertise in the design and fabrication of silicon detectors. They collaborated on the BABAR silicon vertex detector and have now extrapolated that experience to CMS and GLAST. With GLAST, INFN has joined

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Diana Rogers)

SLAC's new initiatives in astrophysics.

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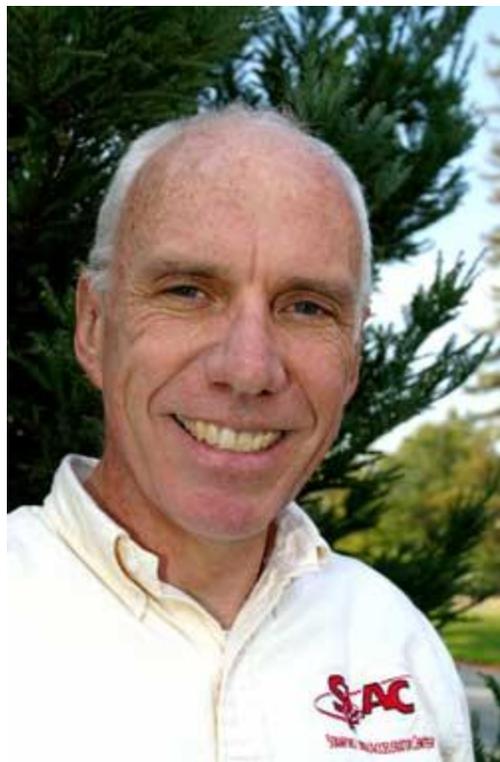
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John Galayda, Associate Director for the LCLS Division (Photo by Diana Rogers)

After three years of planning the LCLS facility in collaboration with scientists at UCLA and Los Alamos, Livermore, Argonne and Brookhaven National Labs, Galayda will oversee the construction phase, guiding the laser's growth from the drawing board into a new national user facility, similar in operation to SSRL. The newly-established LCLS Division will operate alongside the existing divisions at SLAC from initial setup and equipment procurements in 2004-05 through construction in 2005-08.

LCLS will use the last kilometer of the linac to speed tightly-packed bunches of electrons towards a 175-meter gauntlet of specially designed magnets. As these 'undulator magnets' bounce the electrons side-to-side, the electrons will emit x-rays into underground experimental stations. The x-rays are 10 billion times brighter and one thousand times shorter in duration than previously possible and promise real-time views into atomic and magnetic acrobatics. The femto-second x-ray pulses could even capture atoms shifting position and forming molecular bonds.

Construction of the super laser will cost approximately \$315 million, Jonathan Dorfan said at his State of the Lab address. The project calls for the addition of a new electron injector branching into the two-kilometer point on the linac. New concrete tunnels, to house the undulator magnets and experimental facilities, will replace the current Final Focus Test Beam (FFTB) tunnel, and

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extend from the end of the current linac past the PEP Ring Road. "Since LCLS will use space currently dedicated to FFTB, proposals for FFTB replacements are in the works," Dorfan said. "We require here the talents of the full lab."

The LCLS Division will draw from existing SLAC personnel as well as external contractors and collaborators. That talent will have the leadership of an individual with exceptional experience.

"[Galayda] is a world class physicist and brings to the LCLS a broad range of talents," said LCLS chief engineer Mark Reichanadter (SSRL/LCLS). "When you talk about free-electron lasers and synchrotron radiation, he's on the short list."

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LCLS is not the first high-energy light source that Galayda has helped to develop, nor even his second. Fresh from his graduate studies at Rutgers University in 1977—and inspired by a lecture from SSRL pioneer Herman Winick—Galayda joined a new project to build the National Synchrotron Light Source at Brookhaven.

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"It was a small group. Everyone did everything," Galayda said. He was up to his elbows in magnets, accelerator design and electron beam diagnosis until accepting a position as division director for the new Advanced Photon Source (APS) at Argonne in 1990. After 11 years with overall responsibility for design, construction, operation and upgrading of the APS accelerator systems, Galayda joined SLAC to help launch the LCLS in April 2001.

LCLS collaborations span organizations and lab sites. Specialized x-ray transport optics and diagnostics, under development at LLNL, must be optimized to deliver the most useful images to users. And the laser's amazing brightness and femto-second pulse duration will demand the best possible performance from the SLAC linac.

"We'll be relying heavily on past experience with the linac," Galayda said. "The extremely short wavelengths of x-rays puts unprecedented demands on the beam quality."

A new electron injector will create a high quality beam using an electron source based on SLAC, Brookhaven and UCLA collaborative R&D. Once the injector shoots electrons down the linac, the accelerator must compress the beam's electron bunches through two magnetic bunch compressors developed at SLAC to generate the LCLS's extremely short-duration x-ray pulses.

Once the system goes on line—in 2009, if all goes as scheduled—users from around the world can apply to perform experiments using the x-ray source. Several experiments, looking at protein structures and magnetic behavior of molecules, are already planned. But this is a technology with unprecedented potential that will push into new experimental frontiers.

"Some experiments are so hard that our outside partners will help us learn to do them," Galayda said.
"A lot of the techniques are not yet developed." Building the LCLS is only the first part of the challenge.

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Through August and September, Krebs is leading a two-shifts-per-day engineering effort for the BABAR detector upgrade. To reach BABAR's top and bottom sextants, Krebs' team will move a mountain of concrete, design and fabricate many new lifting fixtures, and assemble a monster lifting platform. To prepare, Krebs' group designed, built and tested an armament of custom equipment in IR-2's understudy, IR-12 (Bldg. 720).

The Concrete Temple

In the final days of preparation, the buzz of power equipment overflows the open warehouse door at IR-12. A 25-foot pyramid of concrete blocks stretches from the cement floor well towards the overhead bridge crane spanning the cavernous ceiling. The crane is a duplicate of a crane in IR-2—a necessity to ensure that the team's machinations in IR-12 will work in IR-2. The concrete block tower matches BABAR's dimensions, providing a test bed for equipment that Krebs and colleagues are inventing for the upgrade.

Welder Scot Johnson (EFD) helped create custom steel I-beams that brace the concrete tower against earthquakes. He joined SLAC two years ago after 13 years as a welder for United Airlines. Now he cuts, welds and hoists steel beams to make the equipment that will access BABAR's detectors.

"If it needs doing, we just figure it out and get it done," Johnson said. Accessing and replacing the detectors will take some figuring and doing.

To reach the detectors in IR-2, the team must first remove a wall of more than 30 concrete blocks the



The ingenious red press is being used to curve the brass plates. (Photo by Diana Rogers)

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size of limousines. Then, using IR-2's overhead crane, they will lift BABAR's steel flux return out of the way. To lift parts inside BABAR that the crane can't reach, they will assemble custom-built lifting fixtures. Starting with the bottom-most of BABAR's hexagonal interior, they will remove the old detectors and install the new.

The Blue Beast

To access the detector segment, Krebs and team member Les Dittert (BABAR) designed and commissioned a blue, steel-frame hydraulic lift. The Blue Beast's 15-foot base supports a moving upper platform that creeps upwards at about five inches per minute. The platform can lift the equivalent of a large car an additional five feet—enough to reach BABAR's top with heavy equipment and parts.

Like all of BABAR's six segments, the top and bottom sections each contain 18 slots. Krebs' team will install brass plates into six slots, and new detector panels in the 12 remaining slots above and below each plate. The plates will absorb background hadron particles, leaving the particles of interest—muons—free to travel through to the next detectors.

IR-2 engineering coordinator Zorb Vassilian (EFD) will oversee the installation. A 35-year SLAC veteran who has been with BABAR since its start in 1997, Vassilian is the man to see about detector maintenance.

The Red Press

Inside IR-2, brass plates worth \$1,000 apiece are stacked like plank-shaped bars of gold. BABAR's detector slots will support the 7/8-inch thick plates at their ends. To prevent sagging at the middle, Krebs dreamed up a scheme to curve, or 'camber', the plates. With the curved side down, the plate's weight is shifted towards its ends.

Putting a smooth curve into a 5- to 10-foot long brass plate takes ingenuity. Last year, Krebs applied the weight of a concrete block to good effect. This year, he designed a press.

To demonstrate, Krebs dons a red construction hat. He's joined by Mo Olson (EFD), who works with the team during summer leave from teaching physics at Saint Norbert College in De Pere, Wisconsin. Krebs operates IR-2's huge yellow crane by remote as Olson guides a dangling eight-foot plate across IR-2 and onto a brightly-painted steel contraption. The red press emits a whine as its hydraulic foot pushes the plate's center downward. The foot rises and the plate springs back, retaining only the hint of a curve.

"We just put a slight bend in it," Krebs said, "It's not much." This year, they put that subtle bend into

23.5 tons of brass. The summer 2005 upgrade of BABAR's remaining four segments will require 47 tons.

Next year's updates will also require adjustments to the Blue Beast. "We're going to rebuild it in a different form next year," Olson said. He and his colleagues specialize in customization.

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Shedding Light on Luminosity

By Roger Erickson and Kate Metropolis

What on earth is an inverse femtobarn and what does it have to do with the number of events an accelerator produces?

Fittingly, it was in the farmlands of the Midwest that the term 'barn' was first applied to physics. In December 1942, at a dinner on the campus of Purdue University, physicists M. G. Holloway and C. P. Parker were lamenting the lack of a catchy name for discussing the size of an atomic nucleus. They considered calling it the Oppenheimer or the Bethe, after physicists who were leading a project involving uranium cross sections. The cross-sectional area of a uranium nucleus is about 10^{-24} square centimeters, a small area on the human scale but huge compared with the size of other atomic particles. The barn, large compared with other farm buildings, came to mind.

'Barn' is easier to say than 'Oppenheimer' and does not, like 'Bethe', sound like the second letter of the Greek alphabet, which was already being used for several other physics quantities. The name stuck and by June, 1943, 'barn' began appearing in internal technical reports at the secret laboratory at Los Alamos.

'Femto' means a factor of 10^{-15} —a thousandth of a millionth of a millionth. A femtobarn, then, is 10^{-39} square centimeters, an incomprehensibly small unit of area. If you throw a projectile at a target, whether it is a neutron at a uranium nucleus, an electron at a positron or a tomato at a barn door, the larger the cross-sectional area of the target, the likelier you are to hit it.

Imagine you throw enough tomatoes at your farm building to get an average of two hits per square foot. If the barn door is 10 feet by 15 feet, then the cross section for tomato/barn door interactions is 150 square feet, and the number of tomatoes that splat on the door is given by:



Image by Alan Chou

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150 square feet x 2 tomatoes per square foot = 300 tomato interactions

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In this case, the integrated luminosity is 2 tomatoes per square foot (or 2 'inverse square feet').

You can calculate how many electron positron collisions in PEP-II make particles with b quarks in the BABAR detector in the same way. Multiply the cross section for those events (1.1 million femtobarns) by the integrated luminosity (at this writing, 250 events per femtobarn) and you get 275 million events.

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HBCU Fellows Summer at SLAC

By Davide Castelvecchi

One scientist at a time, the Historically Black Colleges and Universities (HBCU) fellows have contributed to bringing diversity to cutting-edge research. The program, now in its third year, enabled three visiting faculty to spend two months at SLAC this summer.



HBCU/SLAC Partnership Fellows receive Certificates of Achievement (left to right): Michael Watson (KIPAC/Fisk University), Jonathan Dorfman (DO), Stephen Egarievwe (EA/Fisk University), Lee Lyon (HR) and Bryan Mitchell (ESRD/Paine U). (Photo by Diana Rogers)

The fellowships were envisioned by retired employee Al Ashley, to expose participants to research opportunities they would not have access to at their institutions. The purpose is to provide the scientists with experience that can make a difference in their career and in their teaching. Meanwhile, the fellowships allow SLAC to tap into underutilized research potential.

The HBCU fellowships are funded by a DOE grant through Paine College, a historically black liberal arts school in Augusta, Georgia.

Many historically black institutions are small liberal arts colleges. Most have limited resources for maintaining labs and demanding teaching loads on their faculty, explains HBCU fellow Bryan Mitchell. "We don't have a lot of time to do research, unless we bring in grants to get release time," he says.

Mitchell teaches in the Biology Department at Paine, where he is in charge of three classes every semester.

He worked on crystallizing a protein to prepare samples for a SPEAR3 beam line. The protein is part of a study to find new methods of fighting bacteria that have become resistant to antibiotics.

"This was a perfect opportunity," says Mitchell, whose stay at SLAC has just ended. "I'm going to take a lot of knowledge back with me, and pass it on to a lot of students."

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Thanks to the experience gained at SLAC, Mitchell says he plans to apply for grants that will enable his students to do research on campus, instead of having to use labs at nearby institutions.

Michael Watson, an astrophysicist from Fisk University in Nashville, Tennessee, spent his two-month fellowship at the Kavli Institute. This was his second summer at SLAC.

Watson set up computer simulations of the turbulent regions around active galactic nuclei. These are mysterious cosmic phenomena—perhaps gigantic black holes—astronomers discovered at the center of some galaxies, including our own Milky Way.

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“Both times I have been here have been enjoyable,” he says, thanks especially to the access to SLAC’s resources. “That includes personnel, but also journals, articles and books that I wouldn’t have back home,” he added.

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Watson says his research may open doors to scientific collaborations. “Now, when I go talk to other scientists, I have a tangible asset.”

He also wants to encourage his students to do research as part of their education, and thinks his experience will help him assure the necessary resources. “The thing a small school needs is a small start-up,” he says.

Stephen Egarevwe, a nuclear physicist and computer scientist from Fisk, is developing software for the Enriched Xenon Observatory (EXO), a nuclear decay experiment SLAC is developing in collaboration with several other institutions. With his software, he says, “Collaborators who are not at the Lab will be able to view and control the experiment remotely.”

Egarevwe is also here for the second time. He was an HBCU fellow at SLAC in 2002. Last summer he worked at Oak Ridge National Laboratory. Both summers were beneficial to him.

“When I got back to my school, I was able to use the training and experience I got here to provide research projects for my students, which helped many of them to get into graduate school.”

In the future, Egarevwe hopes to be able to train minority students who come to SLAC for summer internships. Providing opportunities is not only good for the students themselves. Egarevwe points out, “SLAC and DOE benefit as well, because by providing students with know-how in these fields, they prepare scientists who will be a resource for future research.”

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How Many Nobel Laureates Do You Know Well Enough to Nickname?

By Kate Metropolis

For Mark Allen (EC), a member of the BaBAR collaboration and a graduate student of Aaron Roodman (EC), the answer is now 18. Allen was one of 64 young scientists from the U.S. to attend a five-day symposium of Nobel prize winners in the cobblestoned medieval city of Lindau on a tiny island in the south of Germany. Most of the laureates and researchers who attended this year are, like Allen, physicists.

Each laureate had half an hour to give a talk on the subject of his choice. Then the microphones were opened up and the young scientists could ask questions on the subject of their choice. Even more interesting for Allen were the laureates' round-table discussions on such topics as what the appropriate emphasis should be between 'pure' and 'applied' physics. (That particular discussion ended, Allen said, without much controversy: "You know, all physics is applied. If you call it pure, you're just too impatient.")

The laureates also mingled informally and shared some meals with the graduate students and postdocs—all 567 of them. The majority of the young scientists were German, but participants came from other European countries, Asia, the Middle East, and North and South America.

The young scientists increased their understanding of the structure of university departments, of what earning a doctoral degree entails in different countries, and of other countries and cultures. One highlight for Allen was the evening the Greek soccer team surprised almost everyone, including themselves, by beating the Czechs in the semi-finals of the European Cup. The island has a significant Greek population, and the impromptu celebration that followed was slightly more Dionysian than Apollonian.

For Allen, the human connections were the most valuable part of the experience. He got to hear what laureates think, not only about scientific matters, but also about funding agencies and international politics and ESP and cold fusion.

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"It was really great talking with [Masatoshi] Koshihira," Allen said. He paused, then, to convey the reverence he and his peers felt for the scientist who has done such important work on neutrinos, Allen revealed the nickname they'd bestowed on Koshihira. "He was Yoda," the wise and noble Jedi master in Star Wars.

The annual gatherings were the idea of a German physician from Lindau. To help end the isolation of German science that began when the Nazis came to power and continued after the war, he started organizing medical conferences. Recognizing that a Nobel laureate or two would boost the prestige of the event, he approached a member of the Swedish royal family living on a nearby island, who helped convince a few German laureates to attend. Later, the scope of the meetings broadened. Typically the focus rotates each year among physics, chemistry and the medical sciences.

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By Mike Grissom

In the last issue of TIP, I reviewed the progress of the four working groups established as a result of the serious ladder accident that occurred at SLAC on January 28, 2003. Since then, there have been additional developments, including a specific goal announced by Jonathan Dorfman at his July All Hands presentation that all SLAC staff complete routine Job Hazard Analysis and Mitigation (JHAM) documents by November 15.

The following is an update on the activities of those working groups.

Hazard Analysis Working Group

HAWG completed its development work and is now in implementation. Please see Safety Simplified: Job Hazard Analysis and Mitigation ([TIP, April 2, 2004](#)) and the JHAM web site (www-internal.slac.stanford.edu/esh/SLACsafety/jham/).

Vertical Integration Working Group

VIWG completed development of the process for setting institutional ES&H goals. Each division is now following up with its own goal-setting activity.

Readiness and Emergency Management Team

The REM team has completed its work following the training of key SLAC staff in accident investigation (July 26-28, 2004) and revision of Chapter 28 of the ES&H Manual, Accidents, Injuries, Illnesses, and Exposures (www-group.slac.stanford.edu/esh/eshmanual/ESHch28.pdf).

Data Management Working Group

DMWG continues to develop a process to improve tracking and trending analysis of incidents and accidents at SLAC.

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Key Elements of ISMS

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The products of these working groups are (or will be) incorporated as key elements of the SLAC Integrated Safety Management System (ISMS). Details about the SLAC ISMS program, including the safety management system document, are available on the Web (www.slac.stanford.edu/esh/isms/).

Details on how individuals and managers can participate fully in the ISMS process will be the subject of future TIP articles.

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Exchange Mailboxes Move to 2003 Servers

During the month of August, we will be moving all Exchange mailboxes from Exchange 5.5 to Exchange 2003 servers.

The Benefits

These new servers give Outlook and Web e-mail users extra functionality. They also provide easy, wireless access to a wide variety of Personal Digital Assistant (PDA) devices.

When Should you Expect the Move?

Early in August, one of the mail-admin team members will contact you via email to inform you of an approximate time-frame when your mailbox is scheduled to move.

The moves will be done only after normal work hours or on weekends.

For Exchange 2003 FAQ's, see: www2.slac.stanford.edu/comp/messaging/exchange2003_faq.htm

Contacts: Mary Crume and Teresa Downey, E-mail Admin Team, SCS Applications, mail-admin@slac.stanford.edu

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Living on the Edge: Wildland Fire Safety

By Robert Reek

Fire season is here again, and I'd like to remind you of the dangers and share some tips.

SLAC itself and the homes of many of us are in 'wildland interface areas'—pockets of development surrounded by grassland, scrub and forest. These areas are especially prone to devastating, hard to fight, fires. Every year across the country, fires destroy hundreds of buildings and thousands of acres of land in these areas.

The first step in defending against such fires is for each of us to take simple, basic precautions. Remember, fire safety is our personal responsibility. Fire stops with us!

Protecting SLAC

Here at SLAC we have several preventive measures. Our first line of defense is fire-safe landscaping and weed abatement programs that limit the spread of fire both on-site and to and from surrounding areas. Another precaution is making sure the area around welding activity, which can be very hazardous, is protected from sparks or flame. There are also approved areas where people can smoke as well as special refuse containers for smoking materials.

Protecting Your Home

Those of us who live in or near wildland interface areas can use the following tips:

- Create defensible space
- Choose fire-resistant materials



Defensible space works! (Photo courtesy of Robert Reek)

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- Maintain your home and surrounding property

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If you have any questions or concerns related to fire safety, contact Robert Reek, SLAC Fire Marshal (Ext. 4509) or SLAC Fire Station 7 (Ext. 2776).

For complete tips, see: www2.slac.stanford.edu/tip/2003/jun20/wildland.htm

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CITRIX: A Simple Way to Access Your Work Computer from Home

By Matt Howard

Have you ever wanted to work at home? CITRIX is your answer. It is essentially having direct access to your work computer at home. Anyone with a SLAC userid/computer account can use this extremely convenient way to access your computer desktop from home. All you need is a computer (Windows 95/98/ME/2000/XP, Unix, Linux, or Mac) with an internet connection.

CITRIX is a simple way to access your desktop, your drives and even your printers at work, all from home—or from any computer in the world with internet access—using a web browser with all the settings on your work computer. If you don't want to run the entire desktop, you can just run individual programs. For example, Microsoft Outlook opens automatically at your Inbox.

"I used to come in [to my office] to read mail and work in the evenings and weekends. CITRIX has changed all that," said Neil Calder (COM), a more than satisfied CITRIX user. "I can do everything from my computer at home. It's fast and easy to use."

CITRIX gives you access to all of your drives, so you can access any of your files. It even allows access to your C drive (called the L drive on CITRIX), so you can easily move files from your home computer onto your work computer.

"It's a secure way of gaining access to your applications here at SLAC," according to Brian Scott (SCS), head of the CITRIX team. Since it is run through a Web browser, CITRIX is extremely secure, which is the main reason it is the preferred method for employees to use working from home. You don't have to worry about managing or updating it because, unlike other methods, CITRIX is always managed and updated by SCS.

"Our primary design goal for the CITRIX Farm was to create a facility that would provide a consistent user experience to our remote users coming across the Internet without compromising security," said Ricardo Kau (SCS) who was in charge of the CITRIX implementation project.

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To use CITRIX all you have to do is complete an account request form. You get a speedy reply from the CITRIX team and then download the program. You can then sign on, using your regular SLAC account (from slaccitrix1.slac.stanford.edu or slaccitrix2.slac.stanford.edu). Once you sign in, you are ready to access your computer desktop or to run individual programs.

Two sets of machines at SLAC make this possible. The first one allows everyone access to standard software, and the second is for special licensed software that only some people have access to.

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“In order to use a licensed only application on CITRIX, the user must have a valid license for the software and be added to the software group,” explained Tim Miller (SCS), who works on the CITRIX program. “Licensed software is software that requires that you have paid for it.”

All employees at SLAC are encouraged to use CITRIX in place of other commonly used methods because it is much more secure and reliable. If you encounter any problems, please go to www2.slac.stanford.edu/comp/helptrak/ and choose CITRIX from the desktop support bar.

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For account request: www2.slac.stanford.edu/computing/windows/services/citrix/

For standard software: www2.slac.stanford.edu/computing/windows/services/citrix/applications.htm

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Trunov, Artem (SCS), 8/1

White, Linda DuShane (DO), 8/1

10 Years

Akre, Ronald (KLY), 8/1

Witebsky, Susan (EP), 8/1

15 Years

Blackwell, Robert (SEM), 8/1

De Lamare, Jeffrey (ESD), 8/1

Russell, Amalia (ESD), 8/9

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To submit a Milestone, see:

<http://www2.slac.stanford.edu/tip/milestonesubmissionguidelines.htm>

See Awards and Honors at <http://www.slac.stanford.edu/slac/award>

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www-project.slac.stanford.edu/kidsday/2004/detailhtm.htm

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The Interaction Point is published twice monthly every first and third Friday. Submissions are due the second and fourth Tuesdays of each month. Send submissions to tip@slac.stanford.edu, or mail to TIP Editor, MS 58, Stanford Linear Accelerator Center, 2575 Sand Hill Road, Menlo Park, CA 94025.