INTERACTION POINT

February 21, 2003

SPEAR3: Standing on the Shoulders of a Giant

By Tom Mead

It's been a long time comin'. SPEAR2, named SPEAR when it was built more than 30 years ago, will close down on March 31. But, it won't be a long time gone. In an enterprising example of close-order scheduling, the upgrade to SPEAR3 will begin just two hours after the event marking SPEAR2's closing.

SPEAR2 is the venerable physics workhorse that enabled a significant percentage of the spectacular science for which SSRL and SLAC have become world-renowned. It is arguably one of the most productive research facilities ever built.

The Stanford Positron Electron Asymmetric Ring (SPEAR) first operated in 1972 for high energy physics (HEP) research. Of the many high-energy experiments that were conducted, two have led to Nobel Prizes. The first experiments with synchrotron radiation began at SPEAR in 1974. As the HEP program evolved, so did synchrotron radiation science, and through a gradual series of improvements during the late 1980s and early 1990s, SPEAR became a dedicated synchrotron light source for SSRL.

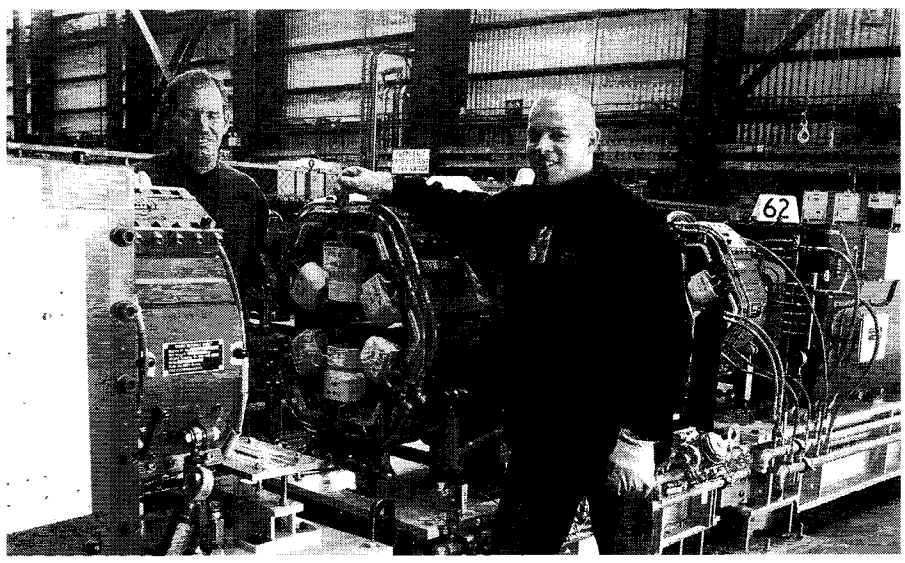

Photo by Diana Rogers

Kirk French (ASD) and Eddie Guerra (ASD) stand in front of magnets for SPEAR3. The magnets were made at the Institute for High Energy Physics in Beijing, China.

As a fully dedicated light source, improvements were made to the operational modes to enhance its capabilities, particularly its brightness—a measure of the laser-

(See SPEAR3, page 3)

Compact Light Source Goes Commercial

Staff Forms New Company to Develop Tabletop Synchrotron Light Source

By Tom Mead

A spin-off enterprise based on SLAC technology transfer has emerged. A new company has been formed to develop a compact synchrotron light source based on Compton scattering of a laser beam. The founders of the company are Ron Ruth (ARDA), Rod Loewen (KLY), and Jeff Rifkin (formerly with ARDA). The National Institutes of Health is funding the prototype development.

The enterprise is named Lyncean Technologies, Inc. Lyncean refers to the eye of the lynx, historically used as a metaphor for acute and penetrating vision. The name is apt; Lyncean intends to develop and market a tabletop light source, which has imaging capabilities comparable to a modern synchrotron light source. This represents an effective scale reduction of 200:1 over existing synchrotron light sources.

How it Works

The Compact Light Source (CLS) builds on the SLAC and SSRL experience with large synchrotrons. Existing synchrotron light sources at U.S. facilities employ multi-GeV electron beams stored in large rings of magnets to generate intense, bright 0.1 nm wavelength radiation. The CLS uses a marriage of an electron beam and laser beam to accomplish the same effect. The shift from the periodic magnets (undulators or wigglers) of the typical synchrotron light source, to the laser beam in the CLS, allows a

(See DESKTOP SSRL, page 3)

MathCounts Student Competition Held at SLAC

By Nina Adelman Stolar

A group of 112 middle school students from 15 local schools participated in the 20th annual Peninsula MathCounts competition held on Saturday, February 1, at SLAC. The students, teachers and volunteers appreciated the welcome they received from Emily Ball (PAO) and they were quite impressed with the facilities.

For the written portion of the nationwide competition, two individual rounds were followed by a team round where the students worked together to answer the questions in the time allotted. A 'Jeopardy' style competition followed lunch.

Twenty students from Nueva School in Hillsborough, Jane Lathrop Stanford Middle School and Jordan Middle School in Palo Alto, Blach School in Los Altos and Bayside School in San Mateo advanced to the State Competition to be held in March at UC Davis.

MathCounts is a nationwide math coaching and competition program designed to improve math skills among U.S. middle school students through grassroots involvement. Over six million students have participated in the MathCounts program. MathCounts' Founding Sponsors are the CNA Foundation, the National Society of Professional Engineers and the National Council of Teachers of Mathematics.

Volunteers act as coaches during the year and are needed as proctors and graders during the competition. The local competition was sponsored by

Photo courtesy of Nancy Seeman

Students at the 20th annual Peninsula MathCounts competition.

Applied Biosystems. If you would like to be involved next year, please contact Nancy Seeman (Stanford U.) at seemanmj@stanford.edu.

For more information on MathCounts, see:

http://www.mathcounts.org/

SLAC Office Manages the 'Business' of Physics

By Kyle Jaros

SLAC physicists call science, not business, their specialty. But SLAC does not exist in a vacuum, and when hardware and software developed to support specialized research find wider audiences in industry, relations with the private sector can prove very useful. Coordinating SLAC's interests with commercial interests—without getting in the way of science—is the specialty of the Office of Technology Transfer (OTT).

The OTT, a four-person group with both technical knowledge and business savvy, operates in SLAC's Business Services Division. The office drives the recognition, protection and transfer of laboratory-developed technologies with commercial potential, and spends much of its time arranging and managing technical collaborations involving SLAC projects and private companies.

"Our role is to take technology we develop here at the lab for our own purposes and get it out into commerce," Technology Transfer Administrator Jim Simpson said. Born more than a decade ago of federal legislation and changes in the Department of Energy (DOE) mission, the OTT and its counterparts at other federal labs have made technology transfer, once a peripheral mission of national science, a channel for intellectual and financial symbiosis.

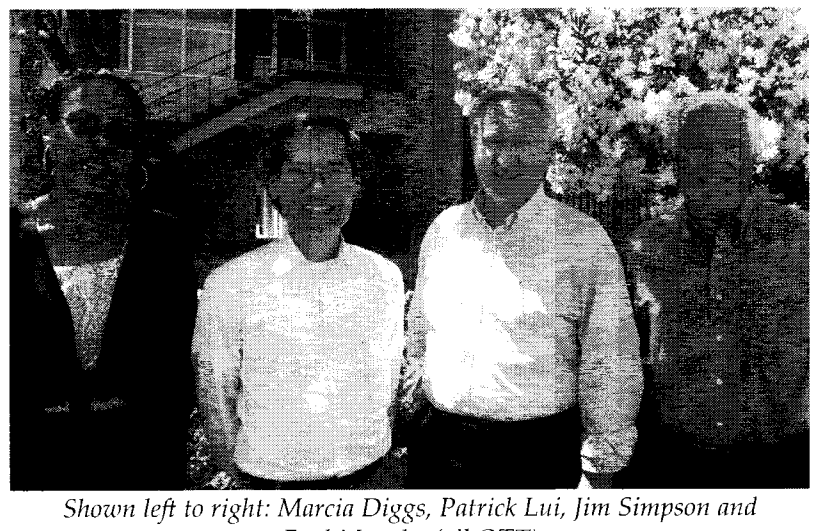

Photo by Diana Rogers

Shown left to right: Marcia Diggs, Patrick Lui, Jim Simpson and Fred Murphy (all OTT)

Keeping a careful pulse on technological innovation at SLAC, the OTT sifts each year though roughly a dozen software programs and a similar number of inventions to

(See TECH TRANSFER, page 2)

Many New Computer Courses Available

For scheduling and registration information, see:

http://www.slac.stanford.edu/comp/edu/calendar.html

Radiation Shielding Experiments at the FFTB

By Miriam Boon

A team of radiation physicists recently completed a series of experiments at SLAC to determine the high-energy neutron spectra and its attenuation length in concrete. These are important quantities in the design of shielding at high-energy accelerators.

"We want to be conservative in our approach to radiation safety but need to be as accurate as possible in order to save in the cost of shielding," said Sayed Rokni, of the Radiation Physics Department (RP) at SLAC.

Rokni and Takashi Nakamura of Tohoku University have been leading a collaboration of physicists from CERN and their respective institutions in a series of experiments to reach a more accurate understanding of the energy spectrum of neutrons as they pass through shielding.

Measurements of this precision had not been possible to date, due to the lack of accurate calibrations of high-energy neutron detectors. The final calibrations of the NE213 organic liquid scintillator, which made the experiment possible, were carried out in 2001 by Tohoku University.

Nakamura's group first used quasi-monoenergetic neutron beams to raise the calibration range to 200 MeV from the original 20 MeV. Then, at the Heavy Ion Medical Accelerator in Chiba, they used neutrons generated in the interaction of heavy ions on a thick carbon target to extend the range up to 800 MeV. A time-of-flight technique was used to determine the neutron energies.

Photo courtesy of Radiation Physics Dept.

Collaboration members, from left to right: Tomoyo Nunomiya, Sunsuki Yonai, Shingo Taniguchi, Takashi Nakamura (all of Tohoku University), Sayed Rokni (RP), Michiya Sasaki (Tohoku), Stefan Roesler (CERN) and Clive Field (EB). Other members not shown: James Liu (RP), Ken Kase (RP), and Hiroshi Iwase (Tohoku).

Using these calibrations, the SLAC-CERN-Tohoku collaboration was able to conduct their radiation shielding experiment at SLAC's Final Focus Test Beam (FFTB) in two runs in June 2001 and June 2002. Availability of beam through the Test Beam program at SLAC was crucial in the ability to perform these measurements. Ted Fieguth (EFD), Clive Field (EB), Ron Seefred (OHP) and Accelerator Department Operations staff were instrumental to the successful completion of the measurements.

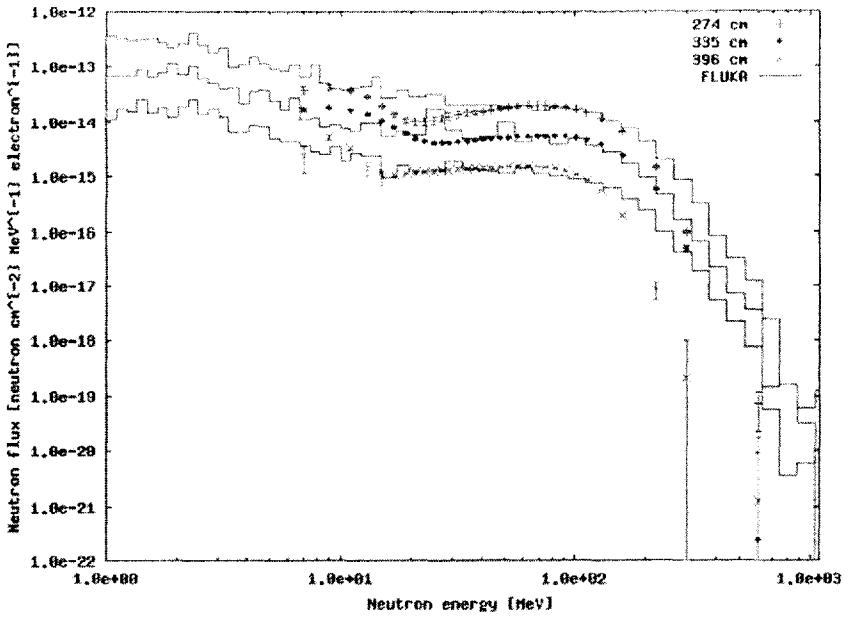

Image courtesy of Radiation Physics Dept.

Preliminary neutron energy spectra measured outside the FFTB dump with the NE213 scintillation counter. Measured data at different thicknesses of concrete are compared with results of simulations from FLUKA radiation generation and transport code.

The experiments were conducted by aiming the beam at the FFTB's aluminum beam dump. The resulting bremstrahlung radiation interacts with nuclei, causing neutrons to be emitted. The neutrons and remaining gamma rays pass through iron and concrete shielding, losing energy.

At the edge of the shielding, a Bonner multi-sphere detector set measures the neutrons with energies lower than 20 MeV, and the NE213 detector measures neutrons with energies from 6 MeV to 800 MeV. Shielding width was varied as data was taken.

This is the first time that the neutron spectra have been measured in such a wide range of energy through the shielding of a high-energy electron accelerator.

Results are expected in spring of 2003, and will be used to benchmark shielding calculations in particle accelerators.

For more information, contact Sayed Rokni, Ext. 3544, rokni@slac.stanfod.edu.

For more information about the Radiation Physics Department, see: http://www.slac.stanford.edu/esh/rp/rp.html

Tech Transfer

(continued from page 1)

identify items that might be useful for industry. "What we build here is for our own purposes. We have to define its commercial use, put together documents and apply for a patent," Simpson said. Typically, the OTT singles out for development roughly a half-dozen technologies that it considers commercially promising.

Technology transfer is not simply altruism on the part of SLAC. When SLAC technologies are protected and licensed, the lab and inventors gain compensation and royalties. In addition, the OTT has helped SLAC scientists and engineers win DOE grants and industrial support to develop their technologies.

Collaborating With the Private Sector

Much of the OTT's work involves arranging collaborations with private companies to co-develop promising technologies. "We leverage SLAC resources for research and development," Simpson said. The agreements serve the common interests of SLAC and industry and make use of the complementary resources of SLAC and the industrial partners, usually small businesses. "It's not a one-way street," Simpson said.

By helping private companies coordinate their own work with SLAC's technical projects, the OTT gives private companies access to SLAC technology and brings both private innovation and funding into SLAC. "For an investment of a half million dollars spread over a handful of projects and two or three years, SLAC is able to obtain from these collaborations research and development results worth 10 or 15 times as much," Simpson said. Collaborative R&D projects for 2002 were valued at nearly $2.5 million, but OTT Associate Patrick Lui sees other important reasons for this cooperation. "There is the intangible benefit of being able to import technology," he said. "There is the possibility of new inventions."

The OTT staff use their broad base of experience to deal with technological, legal and business-related elements of their cases. "It's a really interesting mix of problems to solve. It's necessary to understand the technology thoroughly—the physical principles," said Lui.

Expert in SLAC's technologies, the OTT functions as a liaison to the business community and U.S. government, but also deals in-house with large portions of commercial negotiation and legal protocol. Said Murphy, who like his colleagues joined the office from a physics background, "It's a much more human and complicated negotiation atmosphere than I expected."

Developed in the 1980s

SLAC first codified its goal of technology transfer in the 1980s—the OTT took on its present name and role in 1990. According to Simpson, the combination of U.S. industrial rivalry with Japan in the 1980s and the Cold War's close in the early 1990s pushed the DOE to increasingly focus its resources toward civilian applications.

A sequence of legislation—including the 1980 Stevenson-Wydler Technology Innovation and Bayh-Dole Acts and the 1989 National Competitiveness Technology Transfer Act—provided legal infrastructure for technology transfer and collaboration with the private sector, leading to the opening of similar offices throughout federal labs.

Electron Gamma Shower

Of a number of technologies the OTT has ushered into industrial development, Lui has been particularly involved in the transfer of a revolutionary software program, Electron Gamma Shower (EGS), first released in 1978 by SLAC physicist Ralph Nelson and a colleague at Stanford, and later improved at low energies by colleagues at the National Research Council of Canada.

The EGS software, which models the dissipation of energy produced as high-energy electrons and photons enter various media, found a perfect niche in the radiation therapy industry. Since its introduction, numerous companies have integrated EGS into cancer treatment systems or relied on it as the 'gold standard' against which to test their own software.

Over the course of several hard-fought years, the OTT helped Nelson, along with an international group of collaborators, secure product protection, substantial DOE grant money and commercial licensing for newer versions of EGS, including the EGS 5 system currently under development. "What is gratifying is that we are a national lab, and our job is to do fundamental research," Nelson said. "If, in the process, we can make a contribution to society, that's great."

Creating an Entrepreneurial Culture

According to Murphy, the culture at SLAC, where specialized science takes the front seat, is inherently less entrepreneurial than the culture of Stanford University, where technology transfer is endemic. In spite of that, said Murphy, "[The SLAC environment] is slowly changing."

According to Lui, DOE efforts in recent years to streamline bureaucratic elements of technology transfer as well as research programs like Stanford's inter-disciplinary Bio-X enterprise, which may take a foothold at SLAC, should further encourage technology transfer at SLAC.

Looking ahead, said Lui, "I find it most exciting to see the possibility that something we do that is so esoteric may find commercial application, sometimes in areas beyond our wildest dreams."

For more information on technology transfer at SLAC, see: http://www.slac.stanford.edu/grp/irm/techtransfer/techtransfer.html

SPEAR3

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like concentration of the produced radiation. The improved machine was called SPEAR2. In addition, new sources of radiation pioneered at SSRL—wiggler and undulator insertion devices—were installed to further increase SPEAR2's brightness. The first wiggler is now on display on the ring road near the Gate 17 access to SPEAR.

While SPEAR2 could see quick and deep, SPEAR3, with 10-100 times higher photon brightness, will see even more quickly and deeply. Herman Winick, Assistant Director of SSRL, explained that, "SPEAR3 can be expected to extend SPEAR2's remarkable legacy by enabling the 2,000 SSRL users to investigate the atomic arrangements and electronic properties of materials, including biological and semiconductor materials, at higher spatial resolutions and at shorter time scales."

The main goals of the current upgrade are to significantly increase photon brightness and provide more stable photon beams. These goals will be reached by replacing the entire storage ring magnets, power supplies, the 235 meter long vacuum system, 54 magnet support rafts, RF system, cable plant and floor foundation.

The existing arrangement of 27 experimental stations with wiggler, undulator and bend magnet source points will remain largely unchanged, although new mirror systems and additional liquid–nitrogen-cooled monochromators will be installed to handle the higher power levels. The design of the new machine takes advantage of technology developed for PEP-II, particularly the copper vacuum chamber and the mode-damped RF cavities, according to Tom Elioff, SPEAR3 Project Director.

In order to prepare for possible future applications, all systems are designed for a maximum electron energy of 3.3 GeV. At its planned operating level of 3.0 GeV, SPEAR3 will open new research horizons in materials science, structural biology, materials and chemical research, and environmental science, among others.

SPEAR3 is jointly and equally funded by DOE Basic Energy Sciences (BES) and National Institutes of Health (NIH). It will begin to serve users in early 2004. Over the next 12 months its performance will be increased as commissioning progresses. According to Keith Hodgson, SSRL Director, "SPEAR3 will position SSRL to serve its growing synchrotron user community well into the next decade at the same time that revolutionary new opportunities are being opened up by LCLS. We are grateful to BES for its ongoing operations support and investments in the future."

For more information, see: http://www-ssrl.slac.stanford.edu/spear3/SPEAR3_main_page.htm

What is Synchrotron Radiation?

The visible and invisible forms of light produced by electrons circulating in a storage ring at nearly the speed of light are called synchrotron radiation. Synchrotron radiation, like visible light, is electromagnetic waves. Part of the spectrum of synchrotron radiation lies in the x-ray region, where the wave oscillation rate is thousands of times faster than that of visible light. The radiation is used to investigate various forms of matter at the molecular and atomic scales.

START Program in its Fourth Year

By Vickee Flynn

Several years ago, John Turek, ES&H Safety Engineer, introduced behavior-based safety at SLAC. [See Behavior-Based Safety Process Underway in the July 2001 issue of TIP.]

The Site Engineering and Maintenance Department (SEM) has been using the Safety Towards Avoiding Risk Today (START) process since that time. The purpose of behavioral based safety training is to reduce the probability of injuries by: observing work practices for both safe and at-risk behaviors, talking with workers about performing jobs in a safer manner, and asking for input to improve safety.

Since 1999, the START process has made improvements to safety within SEM, as noted by David Toews, Facilitator of the START Steering Committee. "Workers are performing more safe behaviors than at-risk behaviors," he said. "This is brought upon by workers being more aware of safe activities while performing their jobs." Workers feel the process is a worthwhile investment, and they are willing to work together to change unsafe areas and practices. Another improvement has been that communication between workers and supervisors has improved.

There are more 'Level 3' observations by peers who are trained Observers. Level 3 observations ensure there is two-way communication between the observer and worker. The best observation is one in which the worker provides feedback. There were over 500 observations in 2002, up from 355 the previous year. Has this made a difference in safety? "Yes," said Toews.

Toews asked workers in SEM to see what they thought of the behavior based process, and if they thought it had made a positive impact on the working environment. A few of the comments he received are:

- George Sandoval, Lead Painter: "Any safety process that keeps employees from getting injured is good."
- Daniel Manley-Arrieta, Utility Mechanic: "I noticed that our safety awareness has improved from three years ago. We plan our jobs better now than we did in 1998."
- Ron Pacheco, Service Mechanic: "I see workers becoming more aware of safe activities. Having other employees remind us of the safe activities we are doing and the At-Risk activities we need to improve on is a good way of keeping us on our toes."
- Eddie McGee, Health Physics Technician: "The process has been a real good thing. The process keeps us all reminded that safety is first. I notice working habits are changing."
- Jose Regalado, High Voltage Technician: "Personally I am more conscious of my actions at work and at home, and the process has made this impact in my life."

Toews has been the Facilitator of the START program since June 2001 in SEM; Lorenzo Lowery will take over the Facilitator role in April.

Desktop SSRL

(continued from page 1)

reduction of energy and scale by a factor of 200. The CLS is so small that it can easily fit on a typical SLAC conference table.

Why

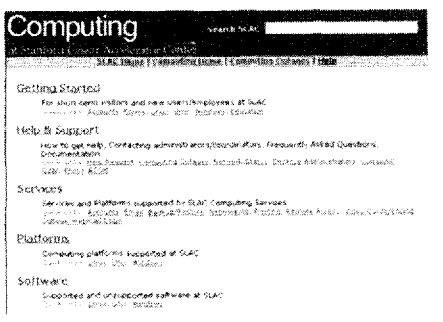
During the past 30 years, synchrotron light sources have become the x-ray probe of choice for materials scientists, physicists, chemists, biologists and research physicians. With their high-quality, intense x-ray beams, these large research facilities have spawned a large number of new technologies spanning a broad array of applications. Rather than having to go to a facility like SSRL, miniaturization will allow researchers to use the CLS at their own site.

Ruth, who is taking a part-time leave from SLAC to get the company launched, said, "We need to miniaturize both the machine and the cost of ownership. In terms of technology transfer and dispersion, this is a way of bringing to the health community, the biology community, and to society some of the very specialized knowledge and technologies produced at SLAC over the past 40 years."

New Computing Page Debuts

By Arla LeCount

Have you had trouble finding a topic or getting help from the SLAC computing Web pages? Please try out our new Computing Web site (shown below).



The redesign effort started one year ago with a committee formed by people across the Lab involved with computing.

The new page organizes computing resources site-wide. These pages will replace the current computing pages after the community has had an opportunity to try them out and give us feedback.

The Web site is located at http://www2.slac.stanford.edu/computing/ and is linked from the Detailed and Highlighted home pages.

Celebrating Chinese New Year

By Linda DuShane White

The Year of the Ram was ushered in with a special celebration on February 3 at Fu Lam Mum Restaurant in Mountain View. "Sixty people from SLAC came together for the nine-course Chinese New Year banquet," said Andrea Chan (SCS), who assisted Carol Tam (ACC) in planning the event.

Photo by Nina Adelman Stolar

Shown left to right: Carol Tam (ACC), Ellen Remerata (ACC) and Mary Mathew (ACC)

The mouth-watering food included Peking Duck, as well as an array of vegetable, seafood and meat dishes that symbolize wishes for the new year. "Steamed Fish stands for luck and Walnut Prawns signify a year filled with laughter," Chan said. Tam added, "The food was delicious and nine courses signify 'all happiness'. The number nine itself means 'longevity'." Such rich symbolism is part of traditional celebrations dating back thousands of years; 2003 is the Year 4700 according to the Chinese calendar.

Photo by Nina Adelman Stolar

Shown left to right: Angie Seymour (ARDB), Charles Lee (DOE) and Luda Fieguth (SEM)

For information on next year's event, contact: Andrea Chan, Ext. 3524, achan@slac.stanford.edu

Photo by Nina Adelman Stolar

Shown left to right: Marty Molloy (DOE), Amy Pensinger (DOE) and Katherine Woo (DOE)

Community Use of SLAC Facilities

By Nina Adelman Stolar

Several community groups meet at the Lab regularly when availability of meeting rooms and parking space does not conflict with Laboratory needs. Granting permission for use of the SLAC facilities is a public service.

We find our community group visitors to be very good guests, leaving the facilities in excellent condition following their use. They appreciate the meeting space and are very cooperative.

The Public Affairs Office coordinates support for community group meetings at the Laboratory. We offer to arrange for a speaker to extend a brief welcome to each group. We also offer public tours and group tours by advance reservation. All non-SLAC use of laboratory facilities (e.g., by community groups, events, association meetings) must be arranged through the Public Affairs Office (Ext. 2204, pao@slac.stanford.edu).

Stanford Community Day in April

By Nina Adelman Stolar

Stanford is inviting residents of the communities surrounding the university to visit on Sunday, April 6, during Community Day. This all-day open house features music, arts, athletic events, science displays, a children's community carnival and health fair. Most events will be centered on or near the university's main quadrangle at the end of Palm Drive. Free parking will be provided, and food will be available for purchase.

SLAC will be participating in the science area. To volunteer as an Ambassador to the Community, please contact Nina Stolar (Ext. 2282, nina@slac.stanford.edu).

For more information on Community Day, see: http://www.stanford.edu/dept/news/neighbors/communityday/

For more information on the SLAC Ambassadors Program, see: http://www.slac.stanford.edu/grp/pao/ambassador.html

Traveling Resource Center Brings EEOICPA to the Bay Area

By Lee Lyon

I want to inform you of another visit to the Bay Area by the Traveling Resource Center associated with the Energy Employees Occupational Illness Compensation Program Act (EEOICPA).

SLAC and DOE wish to notify you that you may be eligible for this important Federal benefits program and how you can apply or get more information.

As a reminder of this program, during the Cold War workers employed in the nation's atomic weapons program or other programs may have been exposed to radioactive and toxic substances. In 2000, Congress passed The Energy Employees Occupational Illness Compensation Program Act to provide assistance to those workers who have become ill as a result of employment at atomic weapon facilities or other facilities.

Individuals, or their eligible survivors, who were an employee, contractor or subcontractor at a Department of Energy (DOE) facility, such as SLAC, may be eligible for benefits under this Program.

Program Administered by the Department of Labor

The federal portion of the EEOICPA, administered by the Department of Labor (DOL), was enacted to provide compensation to workers with cancer, beryllium disease or silicosis. Employees, or their survivors, whose claims are approved may receive a lump-sum payment of $150,000 and medical benefits for the covered illness.

Program Administered by the Department of Energy

DOE has established independent physician panels of occupational medicine doctors to review whether workplace toxic exposures may have caused or contributed to DOE workers' occupational illnesses. If there is an affirmative finding, DOE will assist the worker in filing a claim with the state workers' compensation program.

Toxic-related illnesses could include: asbestosis, liver disease, nervous system disorders, non-cancerous respiratory or kidney disease, heavy metal poisoning, certain reproductive disorders or other diseases.

How to Apply or Get More Information

The Departments of Labor and Energy are sponsoring a Traveling Resource Center to help current, retired, or former workers file applications or get more information about the EEOICPA program:

Monday March 3 through Thursday March 6
8:30 a.m. to 6:00 p.m.
Sheraton Four Points Hotel
5115 Hopyard Road, Pleasanton
(925) 460-8800

Wednesday March 5 and Thursday March 6
8:30 a.m. to 6:00 p.m.
Woodfin Suites Hotel
5800 Shellmound Street, Emeryville
(510) 601-5880

You may drop in or make an appointment by calling toll free (866) 697-0841 between the hours of 8:30 and 5:00 p.m. PST. You can also get more information or file a claim through this number as well.

If you have any questions about the Energy Employees Occupational Illness Compensation Act or wish to file an application, please visit the Traveling Resource Center in Pleasanton or Emeryville on the dates and at the locations given above.

Academic/Career Counseling Available

Thought about going back to school?
Want to advance in your present job?
Considering a career change?

You can set up a time to talk about your options with me, Pauline Wethington (Ext. 4559).

I am available for counseling Mondays, Wednesdays and Thursdays.

Call today to make an appointment!

Interested in sailing?

Come join the NASA Ames Sailing Club.

When: Second Thursday of each month 11:30 am-1:00 pm

Where: Special Events room NASA Ames Visitor Center/gift shop (building N-233)

ID not required

Tel: (650) 604-6274

MILESTONES

Awards

Tantawi, Sami, ARDA, 2003
USPAS Prize for Achievement in Accelerator Physics and Technology, to be presented at the 2003 Particle Accelerator Conference, May 12-16, 2003 in Portland, OR

Deceased

Boozer, Shirley (formerly TechPubs), age 63, February 10, 2003

Kirk, William "Bill" (formerly DO), age 76, February 14, 2003

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

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

Upcoming Events

Mon. Feb. 24 - 28, 9:00 a.m.
SLAC, Panofsky Auditorium
SLAC PHYSICS MEETING
Marcello Giorgi/Barbara Barrera, INFN-U of Pisa/SLAC
BABAR Detector Collaboration Meeting

Mon. Feb. 24, 3:00 p.m.
SLAC, Panofsky Auditorium
SLAC *SPECIAL* SEMINAR
Persis Drell/Tom Himel, SLAC
Kick-Off Meeting for SLAC Scenarios Study

Tues. Feb. 25, Noon
SLAC, Bldg 214, Fuji Conf Room
NOTE ROOM!
SLAC WOMEN'S INTERCHANGE SEMINAR
Nancy Fomenko, Support Network
"A Conspiracy of Caring: Breaking the Silence on Domestic Violence"

Tues. Feb. 25, 12:30 p.m.
SLAC, Orange Room
SLAC EXPERIMENTAL SEMINAR
Amarjit Soni, BNL
"CP Violation in B and K-Physics: Status and Outlook"

Tues. Feb. 25, 4:00 p.m.
SLAC, Green Room
SLAC PHYSICS MEETING
Lab Community, SLAC and more
Scientific Discussion Hour

Wed. Feb. 26, 4:15 p.m.
SLAC, Orange Room,
(Refreshments at 4:00)
SLAC ASTROPHYSICS SEMINAR
Armen Atoyan, U of Montreal
"Beams of Neutral UHE Particles from Blazar Jets"

Please send additions to: seminars@slac.stanford.edu

For complete event listings, see: http://www.slac.stanford.edu/grp/pao/seminar.html

The Interaction Point

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