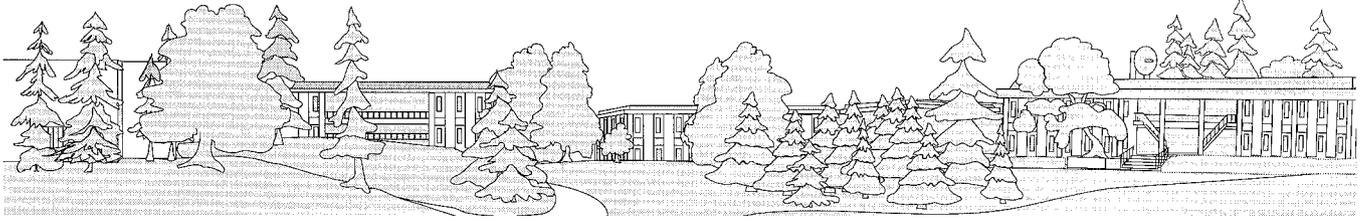


The Interaction Point

Events and Happenings
in the SLAC Community
August 1993, Vol. 4, No. 8



SLC AND SLD RECORD 50,000 Zs

By Sarah Morisseau

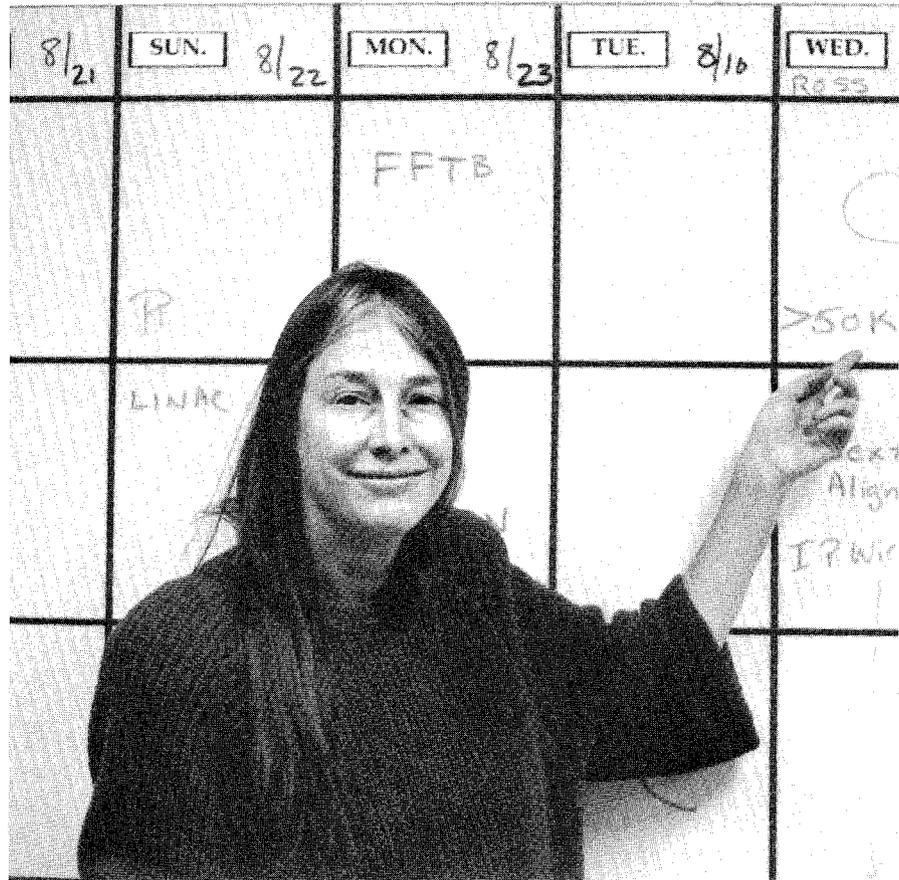
AT 8:00 EVERY MORNING, shift operators, physicists, and technicians gather for an update on the progress of the SLAC Linear Collider (SLC). The room is always packed, but on Wednesday, August 11, even the sleepest showed up to hear the news: SLC and SLD had recorded their fifty-thousandth Z particle in this run.

"Five times as many Zs as last year seemed a pretty tough goal but we've made it, and we're very pleased," said Nan Phinney, who leads SLC efforts.

The fifty-thousandth Z was created at approximately 10 PM Tuesday, August 10, and celebrated at the next morning's meeting with a large cake for everyone involved with the project. Those on shift when the event occurred celebrated with a bottle of champagne—after they had gone home, of course.

A site-wide celebration is scheduled for 3 PM on August 31. The festivities that day will also honor the successes of End Station A, the Stanford Synchrotron Radiation Laboratory (SSRL), and the nearly 150 employees who are retiring on that day. The End Station A completed a successful electron-scattering experiment earlier this year, and SSRL has just finished a record-breaking year.

SLAC is not the only laboratory creating Zs; nor is it the largest producer—that title goes to CERN in Switzerland, which has already



After several months of long hours and hard work, SLD and SLC, under the leadership of Nan Phinney, recorded 50,000 Z particles.

produced several million Zs. SLAC is, however, the only laboratory that makes Zs with a polarized electron beam, which more than makes up for the difference in numbers.

The Z is a boson, one of the carriers of force between elementary particles. It is created when an electron and a positron collide—but although these electron-

positron collisions occur at the rate of 120 per second in the SLC, a Z is produced only once every two to three minutes. That may sound rare, but the odds of creating a Z are still about 800 times better than the odds of winning the Super Lotto game.

But producing a Z is only half the battle. Zs decay so quickly that

Continued on page 2

Continued from page 1

physicists cannot study the actual particle. Instead, they look at the pair of particles into which the Z decays—usually a quark and an antiquark. The particles produced by the decay of the Z, or the products of those particles' decay, are studied in the detector.

"By measuring the energy and momentum of each of these particles, we are able to deduce the properties of the Z itself," explained Phil Burrows, the MIT staff scientist who had the "good luck to be on shift" at the time of the event.

Studying the Z is one way to test the Standard Model of elementary particle physics. The Standard Model predicts that it is easier to produce Zs when the electron beam is polarized in a "left-handed" sense. Because SLAC is the only research facility which uses a polarized electron beam, it is able to test the Standard Model in a more direct, precise way than is possible at any other laboratory.

SLAC started creating polarized Z particles in May of last year. During that run, 10,000 Zs were produced. This year, the goal was 50,000; next year, the plan is to make 200,000. That run will begin in the spring and continue for about seven months.

For the moment, though, the fifty-thousandth Z means that physicists from SLC and SLD will be writing up the results of the experiment and submitting those papers to various journals—and catching some Zs when they used to be in a meeting.

Harper's Index

Average percentage increase in the bounce of a golf ball that has been passed through an electron beam accelerator: 5.

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The True Story

A&E Bomb Scare Explanation

ONCE UPON A TIME, there was a kingdom called SLAC. The SLAC kingdom was inhabited by elves; physicist-elves, engineer-elves, administrator-elves... every type of elf you could imagine.

The elves at SLAC worked long hours, looking for Zs and quarks and other funny things in a big, long tube they hid underground so that no one could find it. (Elves are a little secretive, you know).

But this story isn't about the tube or the quarks. It is about a box, just an ordinary cardboard box which appeared one day on a secretary-elf's desk. It was an old box, a little beat-up looking, with a metal probe sticking out of it and wires running in and out. He didn't know where it came from, so he called over an administrator-elf to look at it. She told all the elves to leave the building and called another administrator-elf, who called another...

"Remember the elf from one of the northern kingdoms who was hurt by a mysterious box earlier this summer?" said the first administrator-elf.

"There was one back east, too," added the second.

"Think it might be the same thing?" the third asked. "Think it might be a bomb?"

They looked at each other, eyes big with worry, then called 911.

All the elves were waiting outside when the sheriff arrived with the bomb squad. They were still there a few minutes later when the fire trucks came. They watched, nibbling their little elf fingernails, while the bomb squad dogs sniffed at the box and the experts took x-rays. The experts weren't quite sure what it was, but they said they would have to blow it up, just to be safe. So the elves backed away while the experts brought the box outside and blew it up.

"So what is it?" one of the elves asked. (Elves may be cautious, but they're very curious, you know).

"I don't know," the expert replied, scratching his head.

"I've never seen anything quite like it." He shrugged his shoulders and got in his car, the dogs following him. "Let me know if you

ever find out," he said as he drove away.

The elves walked back into their offices, talking amongst themselves. What was it? Where had it come from? Two of the administrator elves were deep in discussion when a contract worker from outside the kingdom tapped one of them on the shoulder.

"Excuse me," he said. "I've been working on the air conditioning thing here. I had this box for checking the system but I can't seem to find it. I think I must have left it on somebody's desk—you guys seen it around?"

—Sarah Morisseau



New Benefits Administrator Brings Expertise

THE DEPARTURE OF nearly 150 employees at the end of August means the arrival of several new ones. In the middle of all these comings and goings is the new Benefits Administrator, Georgia Printup.

Georgia, who just moved here from Virginia, will be replacing Marie Arnold when Marie retires at the end of the month. The Benefits Office is at a major turning point: not only will there be a new administrator, but soon a new benefits plan as well—Stanford University is changing to a flexible benefits program which will go into effect at the beginning of 1994.

"My biggest goal is to have a smooth transition to the new flex plan," Georgia says. "It's going to take up a major portion of my time." That is a large task, but not a new one for her—she helped implement a similar plan for health care professionals at the University of Virginia, where she was the manager of benefits for the past two years. Georgia was also the benefits administrator for Sperry Marine, Inc., for six years.

She is planning several large-group informational meetings where employees may ask questions. She also anticipates spending a good deal of time talking more personally with employees. "I expect to get to know people on a one-to-one basis," she says with a smile, adding that this was not always possible at the University of Virginia because of its size.

Perhaps the largest challenge in implementing a new benefits plan is to make sure that all eligible employees participate in the new program. "Benefits are just as important as your paycheck," Georgia says. "It's like extra money in your pocket or a bonus salary." Most people would agree to this in



Georgia Printup, SLAC's new Benefits Administrator, can always find time in her busy schedule to talk with employees and explain Stanford's new flexible benefits program.

theory, but when it comes down to actually enrolling in a new program, many employees tend to let the deadline slip by. "People have to realize that there are enrollment deadlines that we don't control," she warns. Stanford's new benefits plan—called "Educated Choices"—will not actually start until January, but it will be necessary to sign up for the plan in November.

Georgia holds a Bachelor's degree in English from the State University of New York at Potsdam, and a Master's degree in Public Relations from Syracuse University. But she says the best education for being a benefits administrator was on the other side of the classroom, as a teacher. "I learned to bring things down to an explainable level," she says, adding that she also learned to find several different ways to

explain something, because "not everyone understands things the same way."

Once all the moving boxes are finally unpacked, Georgia plans to enjoy the California sunshine and continue researching her family history with a few books on late 18th century America. She and her husband Roger have two sons; Todd, a real estate investor who lives with his wife in Rochester, New York, and David, a graduate student in Electrical Engineering at Virginia Polytechnic Institute. Roger is the new registrar for Stanford University. "I assume we'll have lunch together every once in a while," she laughs.

—Sarah Morisseau

Faludi: Is There a Feminist Backlash?



Susan Faludi, author of *Backlash: The Undeclared War Against American Women*, describes results from research for her upcoming book.

FEMINIST WRITER Susan Faludi spoke to a standing-room-only lunchtime crowd last month in a presentation sponsored by the Women's Interchange at SLAC. The talk centered on her current book-in-progress, which she has nicknamed "Son of Backlash." It is a follow-up to her best-selling *Backlash: The Undeclared War against American Women*, which describes the repercussions of feminism in American society.

Her new book, which she says is "still in its prenatal stage," analyzes the recent upsurge of men's movements and the so-called male identity crisis. "There is a widely held belief or fear that American manhood is in eclipse, that we are in the midst of a period of great uncertainty and unease about the status and worth and basic identity

of the American male," Faludi explained.

"In the first book, I asked, 'is there a backlash, and if so, how does it work?' In the second, the underlying question was, 'why is there a backlash?' " she said. "My aim [for the second book] is to investigate the roots of American men's resistance to women's quest for equality and to look more critically at what the press and popular culture is calling 'a crisis of masculinity.' "

Faludi cited the growing number of hate crimes against women—particularly sex-related violence and assaults in the workplace—as "signs of a male identity crisis," and suggested economics as one reason for the backlash. "The eligibility requirement of American masculinity is that sons will sur-

pass their fathers in earning power," she said. With women now earning more and more, "How can you expect male confidence not to go into a tailspin?" she asked.

Faludi's ideas are often radical, and it is for that reason that she sparked so many discussions around SLAC. Her presentation challenged both men and women to examine their ideas on gender and to look past their own opinions to see the other side of the issue.

"I may view women as the primary victims of an unequal social system originally arranged for the benefit of a small group of privileged men, but I cannot ignore the fact that when I read the literature of the men's movement, letters to the editor in men's magazines, or talk to the men I've interviewed, over and over it is the men who say they feel like victims of the women's movement. It is men who say they feel like their power has been taken away, that they have no role in modern society. To dismiss that male lament as silly is to ignore the underlying emotional realities..." she said.

Faludi won a Pulitzer Prize for explanatory journalism in 1991. She has worked for several newspapers, including *The New York Times*, the *Wall Street Journal*, and the *Miami Herald*. From 1989 to 1991, she was an affiliated scholar at the Stanford Institute for Research on Women and Gender, and from 1992 to 1993, a fellow in the Stanford Knight Fellowship program for professional journalists. She was named Woman of the Year by *Glamour* magazine in 1992 and later, Feminist of the Year. She is now a freelance writer for *The New York Times*, the *New Yorker*, and *Ms.* magazine.

—Sarah Morisseau

McDonough: A Tale of Two Careers

PAT MCDONOUGH, a former SLAC administrative assistant, returned in June to give a short presentation for the Women's Interchange at SLAC. Since her departure, McDonough has earned a Master's and Ph.D. from Stanford; she is now a professor in the UCLA School of Education. The lunchtime talk focused on her personal experiences as a simultaneous full-time employee and part-time student at Stanford, including suggestions and advice for those considering returning to school.

McDonough outlined three important steps to take when planning to continue your education. First, she says, "you need to clearly understand the rhythms and needs of your office; second, you need to clearly understand the rhythms and needs of your educational program. And you need to make sure that you periodically and honestly sit down and assess the progress that you're making and make any kind of adjustments that might be necessary."

McDonough was lucky in that the "rhythms and needs" of her office allowed her to take classes during the day, as long as she came in early and stayed late to finish all the work. For her, the most difficult part was integrating into the Stanford student community.

"I must say that I was absolutely terrified in that first class. I thought these were real Stanford students (unlike me); I felt like an interloper, somebody who didn't belong.... I just felt different because I was an employee of the University just taking a class and not officially admitted or enrolled or otherwise having been deemed to have met the admissions requirements."

Any Stanford employee may apply to take classes at the University as a non-matriculated student. This status is rarely granted at the undergraduate level, but in the graduate schools it is more common. Non-matriculated students are simply taking classes; they are not working toward a degree. Nevertheless, they pay normal Stanford tuition fees on a per-unit basis. Should a non-matriculated student decide to pursue a degree, the student must apply to the school through the formal application process. In that case, only a limited number of courses taken as a non-matriculated student will apply to the degree.

"In some ways, it was a double-edged sword. At times I felt like an interloper in those classes, and at times I felt like there was a safety net underneath me," McDonough said.

The feelings of inadequacy that McDonough felt as a returning student are common, she says. "Everybody feels like everybody else is getting it [the point]. I still, even at UCLA, keep waiting for them to say, 'okay, we made a mistake. There was another Pat McDonough....'" Nevertheless, she believes that it is "an advantage to try out classes to prove that you can do the work," and often recommends this route to her students.

Although becoming comfortable with your academic program



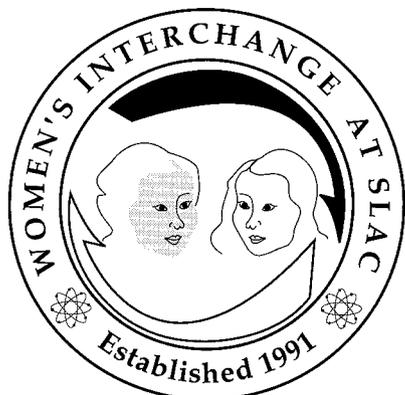
Photo courtesy of Pat McDonough

Pat McDonough balanced two rigorous roles while working at SLAC: full-time administrative assistant and part-time grad student.

is certainly important, McDonough warns against becoming too comfortable. Throughout her talk, she stressed the importance of constant re-evaluation. "You have to sit down periodically and say, what is it that I want to get? How am I going to get there, and will this work? I got to a point in my graduate studies where I said I had to quit. It was a point at which I was not going to get what I needed out of my graduate school career if I didn't stop working here."

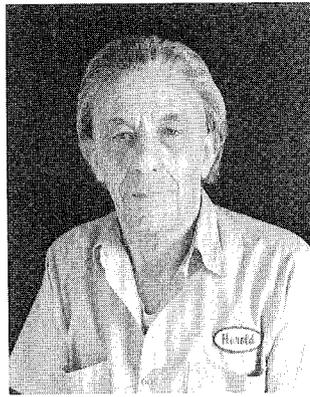
Making such a big change is rarely easy, but often necessary, McDonough says. "If there's some dream that you've got that really needs to be nurtured, you've had it for too long just as a dream and you now need to start acting on it, then do it. And if it means quitting or taking a different kind of job or making some adjustments, then do that. The only person who is going to make your dreams happen is you."

—Sarah Morisseau



RETIREMENT

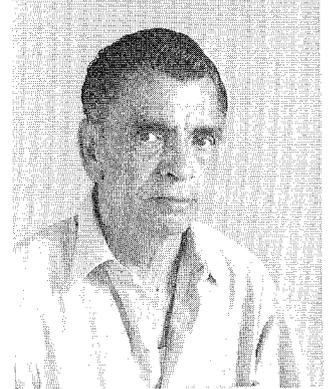
LAST MONTH WE thought we had printed all of the remaining retirement photographs. Not so. Unfortunately several people were overlooked. We apologize for the oversight. Here, then, are the remaining retirees' photos.



Harold Daros



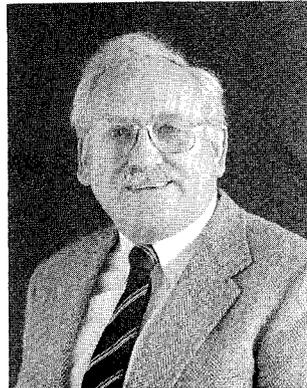
Sal Fazzino



Benny Munoz



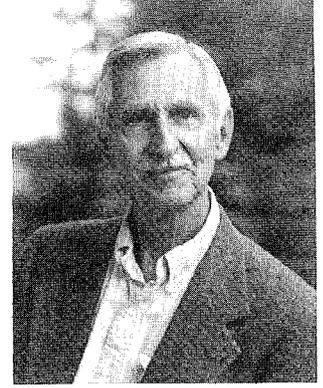
Juanita O'Malley



Werner Sax



John Taylor



J. Ken Witthaus

Versatile Methane-Powered Cars

SLAC USES SIX '93 Dodge Spirits with a variable diet; they can run on either unleaded gasoline or methanol. The Spirits are part of a joint government/industry cooperative effort to help clean up automobile emissions.

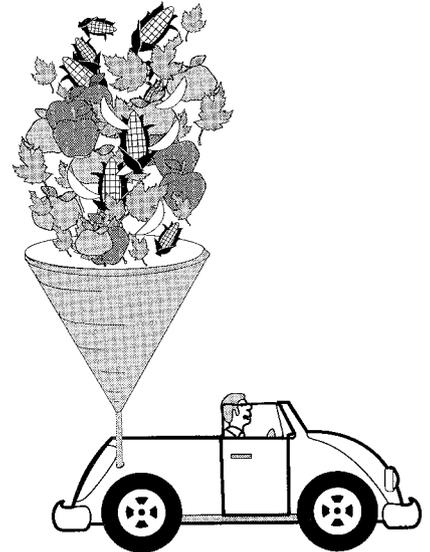
Methanol, a clean-burning, odorless liquid fuel, is produced from sources such as natural gas, coal, and biomass (for instance, rotting vegetables). The commercial product M85 is actually 85 percent methanol and 15 percent unleaded gasoline. For every gallon of gas used by a normal car, these cars use 1.7 gallons of M85. The cars are equipped with larger tanks to increase their driving range. The cars also have fuel sensors that automatically adjust the vehicle's fuel delivery and spark timing to account for the different fuel mixtures.

Methanol's octane rating is 102, compared to 87 for regular gasoline. Methanol produces at least 30 percent less smog-generating emission and about 50 percent less

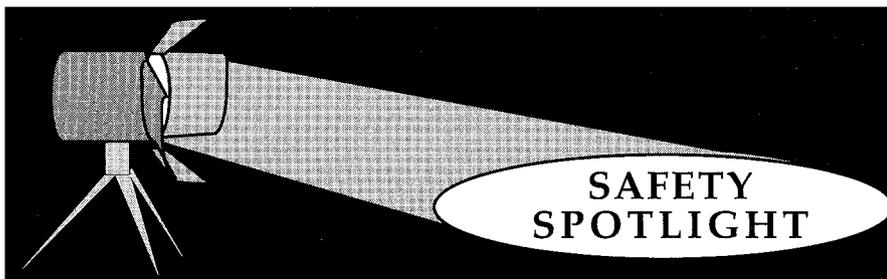
toxic emissions. Unfortunately, there are only about 83 stations that dispense methanol in California. The closest is in San Jose.

This inaccessibility has been a problem for SLAC. Sally Campos of the Transportation Department said "half the fuel" is used just

going to fill up the car, which is hardly energy efficient. As it stands the cars are fueled just like the others. That's the neat thing about them; they aren't picky.—Trevor Payne



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New Training Chapter in ES&H Manual

IF YOU DON'T KNOW what environment, safety, and health training you are required to have and don't know how to find out, the new "Training" chapter of the *ES&H Manual* tells you. The new Training chapter helps SLAC personnel determine and obtain the environment, safety, and health training required by DOE Orders, and federal and state laws. It clarifies the roles and responsibilities of managers and supervisors in meeting these training requirements and also describes the many services provided by the ES&H Training Team.

The new Training chapter is filled with clear, practical information about environment, safety, and health training at SLAC. The chapter explains that your manager or supervisor determines your unfulfilled training requirements in the following situations:

- Upon your initial hire or arrival
- Upon a significant change in your job's duties or hazards
- At your annual performance review

To determine your general environment, safety, and health training

your manager or supervisor completes the ES&H Task/Hazard Survey available from the ES&H Training Team. Your manager or supervisor also determines training requirements for experiment-specific or work-area-specific hazards.

The Training chapter also describes the ways in which the ES&H Training Team helps meet SLAC's environment, safety, and health training needs. The ES&H Training Team coordinates and offers core courses that satisfy general environment, safety, and health training requirements for SLAC personnel. Descriptions, schedules, and registration instructions for core courses are listed in the ES&H Training Calendar and on the ES&H training VM account, both of which are discussed in the Training chapter.

If a specific job or task requires environment, safety, and health training that is not available through core courses, the ES&H Training Team can help managers and supervisors design and develop their own training course for personnel performing the job or task, or locate other sources of appropriate training, such as off-site courses, off-the-shelf courses, videos, and courses offered by subcontractors or consultants.

The Training chapter also explains how to waive an environment, safety, and health training requirement, if it is in an area in which you already have well-established knowledge and skills.

The *ES&H Manual* is a useful resource for everyone at SLAC. If you don't have a copy of the *ES&H Manual*, refer to your supervisor's copy. (Every supervisor has a copy that can be used

on request by those they supervise.) If you need additional information about environment, safety, and health training after consulting the hot-off-the-press Training chapter in the *ES&H Manual*, contact the ES&H Training Team at ext. 3054 or ext. 3662. If you need additional information about registering for training courses, call ext. 2688. When it comes to questions about environment, safety, and health training—what you need, how to get it, and who offers it—the new Training chapter in the *ES&H Manual* is a great place to look for answers.

—Elizabeth Carlassare and Jack LaVelle

Welcome Guests and New Employees

Chang-Jun Ahn, SLC Large Detector; **Tom Banks**, Theoretical Physics; **George S. Brown**, SSRL; **Andrea DiCicco**, SSRL; **Adriano Filippini**, SSRL; **Anamaria Font**, Theoretical Physics; **Brian C. Fuss**, Mechanical Engineering; **Christoph Greub**, Theoretical Physics; **Spencer Hartman**, Experimental Group I; **Anthony Johnson**, Research Division; **Phillip Kientzler**, Facilities; **Arnd Leike**, Theoretical Physics; **Gerhard Materlink**, SSRL; **Takayuki Matsui**, Technical Division; **Eleanor Mitchell**, Technical Division; **Benoit Mours**, Experimental Group A; **Calogero Natoli**, SSRL; **Katsunobu Oide**, Technical Division; **Rodd E. Pope**, Mechanical Fabrication; **Wanda Savarese**, Experimental Group B; **Uwe Schneekloth**, SLC Large Detector; **Paul Weaver**, ES&H/Operational Health Physics; **Ken Yee**, Theoretical Physics; **Arceli Zapata**, Library; **Frank Zimmermann**, Theory & Special Projects.



RADIATION DOSIMETRY PROGRAM PASSES



Matt Allen, center, presents the DOELAP certificate to Gary Warren, left, and Michael Grissom, right.

MATT ALLEN, ASSOCIATE Director of the Environment, Safety, and Health (ES&H) Division, recently presented the Department of Energy Lab Accreditation Program (DOELAP) certificate to Michael Grissom, department head for operational health physics, and Gary Warren, assistant director of ES&H. The DOELAP certificate is like a seal of approval from the DOE; it states that the SLAC radia-

tion dosimetry program meets the DOE's "very rigorous" standards. The accreditation process was a lengthy one; it included two rounds of performance testing, an on-site visit, an examination of records, and an off-site review by an ad hoc DOE committee. The DOE will test the SLAC dosimetry program every two years to ensure that it meets DOE standards.

—Sarah Morisseau



Members of the SLAC Dosimetry Group who worked to gain DOELAP accreditation are, from left to right: (back row) Terry Ash, Chuck Freudenthall, Kathleen Thorton, Steve Carlson, Roger Sit, Michael Grissom, (front row) Gary Warren, Matt Allen and Joli Steiber. Not pictured is James Liu.

All meetings are held in the Orange Room, unless another location is listed. Larger meetings and conferences have a contact listed. Please notify the Public Affairs Office of any additions or changes by calling ext. 2204 or sending e-mail to NINA@SLACVM.

August 31, 3 PM

End of Runs Celebration
The Green

August 31, 8 AM–12 NOON

SERI Retirees pick up checks

Auditorium Breezeway

September 8–10

SLC Physics Workshop
J. Clendenin, M. Chatwell

September 9, 8 AM–3 PM

SUBB Mobile Blood Drive
Auditorium Lobby

September 9–24

SLD Week
TBA

September 28–30

Wescon Electronics
Exhibition
Moscone Center
San Francisco

October 1

SLUO Annual Users
Meeting
Auditorium

October 27–29

SU Alumni Executive
Program
Auditorium

November 4, Noon

22nd Annual SLAC Run
Klystron Gallery Road

November 8–12

SLD Week
TBA

November 16–17

DOE Electronic Industry
Association Workshop
Auditorium
G. Caryotakis

December 6–10

SLD Week
TBA

December 14, 8 AM–3 PM

SLAC Mobile Blood Drive
Auditorium Lobby

EVENT CALENDAR: August–December 1993