

# The Interaction Point

Events and Happenings  
in the SLAC Community  
January 1997 Vol. 8, No. 1



## New Year's Greetings from the Director

Greetings and welcome back. I hope that all of you had pleasant holidays with your family and friends and that the New Year finds you in good health and good spirits.

Even though it is a new calendar year, we are several months into the fiscal year and so far we are managing to adapt to our budgetary constraints. We can expect President Clinton to send the FY98 budget to Congress



Burton Richter

sometime in February or March and I will let you know what that budget might mean for SLAC when we have more news.

Please plan to attend some other events coming up this quarter. We will hold a training program for employees on recognizing and avoiding sexual harassment. I hope that the program will help build a better work environment for all staff.

We all want a safer environment, so we will repeat the safety awareness meetings of last year. The two major questions which I would like you to think about as you go into those meetings are "How well has the Lab responded to the concerns expressed in the 1996 meetings?" and "What new issues have emerged?"

Remember that we all need to work safe, work smart.

## International Exchange at SLAC

A group of South Africans visited SLAC as part of an American tour of DOE laboratories in December. The delegation was researching methods by which they could better integrate business and university research through government-sponsored labs in their own country. This is the first delegation following the Gore-M'becki accord resulting from visits of Secretary Hazel O'Leary to South Africa.

The visit was hosted by Sidney Drell, SLAC Deputy Director, and Jonathan Dorfman from PEP-II. Dorfman is a native of South Africa and he drew on his knowledge of both countries to help explain various projects or interactions.

The visit included a briefing by Dr. Drell, a site tour and afternoon tea with graduate students. The visitors were especially interested in why



Photos: P. A. Moore

SLAC Associate Director Arthur Bienenstock shows the SPEAR Ring to South African visitors: Joshua Grobbelaar, Mbudzeni Sibara, and Stephen Lennon (not shown Dherendra Gihwala).



SLAC staff, graduate students, and African visitors pose for a formal photo after their sessions. Seated (l to r): Arthur Bienenstock, (Associate Director, Synchrotron Division), Mbudzeni Sibara (Mandep Gill (UC Berkeley), and Dherendra Gihwala.

Standing (l to r): Joshua Grobbelaar, David Reyna (American University), Anneli Munkholm (Stanford University), Robin Erbacher (Stanford University), Holly Zhang (Stanford University), Sidney Drell (SLAC Deputy Director), Stephen Lennon, and Jonathan Dorfman (B-Factor Associate Director).

students chose to conduct their research at SLAC. "This session with the students was most useful," said Grobbelaar. "We see that the entire spectrum of education must be addressed — teachers, students and the literacy of the general public."

After leaving SLAC, visitors spent half a day each at Livermore and Berkeley before heading off to Oakridge, then home.

# PPM Klystron Gives NLC a Boost

History was made at the SLAC Klystron Lab in 1996 when 10 lbs. of ring-shaped permanent magnets were used to replace a 1/2 ton, 10 KW solenoid to focus the electron beam in the 50-MW NLC klystron. The cost of electric power for the proposed NLC is a source of great concern. Most of it will be consumed by the 10,000 klystrons required to energize the machine. This one bold step, replacing power-hungry solenoids with permanent magnets, will reduce the NLC electric power bill by as much as \$30 million per year. Happily, the new klystron is also more efficient than its solenoid-focused predecessor, resulting in an additional savings of as much as \$20 million per year in electron beam power.

Permanent magnet focusing of accelerator klystrons is not new to SLAC. The 30-MW, XK5, which powered the accelerator in the 1960's and 1970's, used a large barrel-shaped permanent magnet to focus the beam. Producing the much higher fields for the NLC klystron required a different approach. We used what is called periodic permanent magnet (PPM) focusing, which consists of an array of closely spaced magnetic lenses of alternating polarity, driven by ring-shaped, high-energy, rare earth magnets. The magnets and pole pieces surround the electron

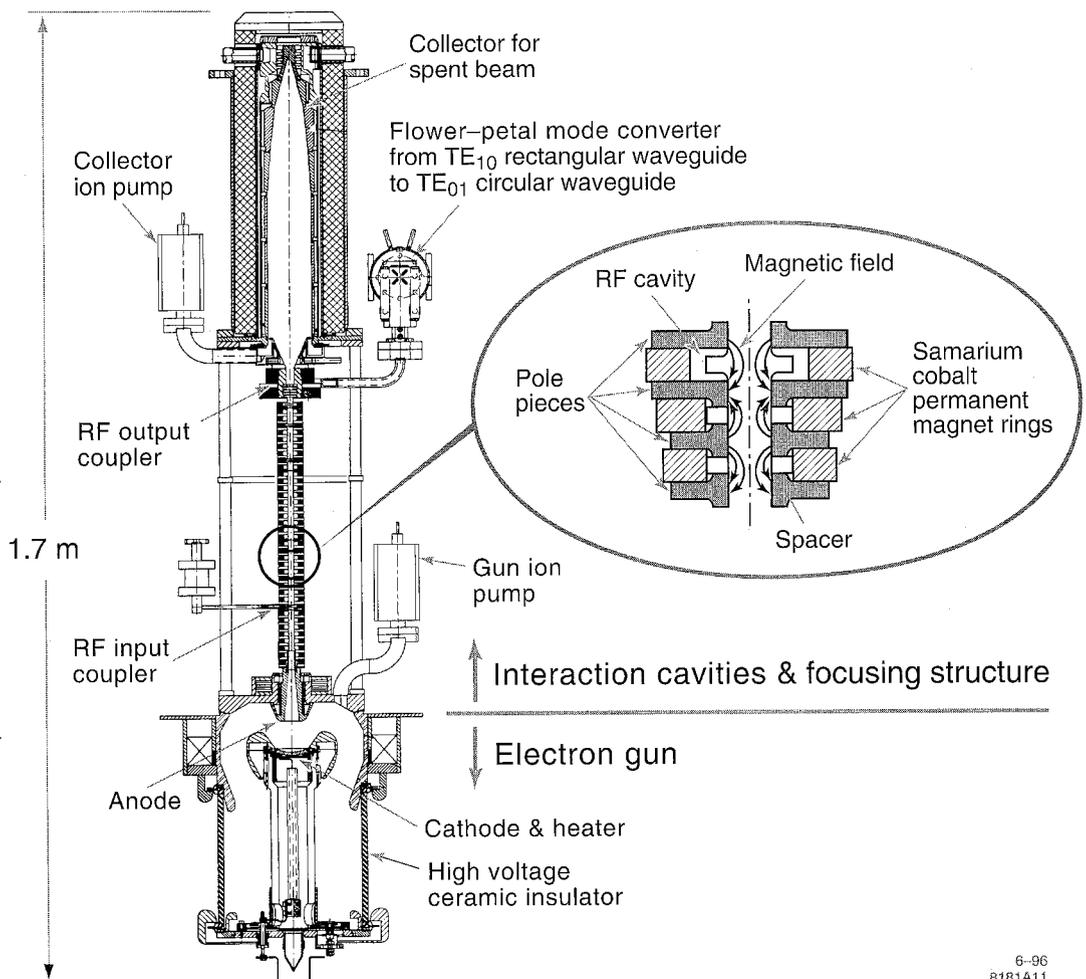
beam just outside the klystron's vacuum envelope.

Though the near-perfect beam focusing required by a 50-MW X-band klystron had never before been achieved with PPM focusing, we believed it could be done if we used the shortest possible lens spacing. It is known that the more closely spaced the magnetic lenses, the more tightly confined the beam. In the past, PPM focusing has largely been confined to much lower power traveling-wave tubes. These are limited by construction features to lens spacings that are at least double those that

we used. Traveling-wave tubes seldom achieve better than 98% electron beam transmission, which compares with 99.9% for the new SLAC klystron. This 20-to-1 improvement in intercepted beam power turned out to be the difference between success and failure. With the "proof of principle tests" behind us, we have started work on a 75-MW, NLC klystron that is being totally redesigned for low-cost mass production.

—Robert M. Phillips  
Klystron/Microwave Department

## PPM Focused Klystron



## Poster Workshop: Third of Series, Jan. 24th

The third workshop in a three-part series on conference poster preparation offered by the Technical Publications Department will be held January 24, 1997, in the SCS Conference Room (third floor) at 3:30 pm.

This workshop focuses on using Microsoft PowerPoint (on Mac or PC) to create single-piece, large-scale color printouts which may be used as conference posters. Terry Anderson (Lead, Computer Graphics) will demonstrate how to use a set of PowerPoint templates customized for SLAC authors by the Technical Publications Dept. staff. If there is time after the poster session, Terry will also demonstrate using the PowerPoint templates to create viewgraphs with a consistent SLAC look-and-feel.

The contents of the two poster workshops preceding this one in the series—"Poster Basics" and "Making Conference Posters Using Adobe Illustrator"—are documented on the WWW in the TechPubs Help Pages:

<http://www/grp/techpubs/help/posters/basics.html>

<http://www/grp/techpubs/help/posters/illustrator-slaonly/>

Note that if you are accessing the TechPubs Help Pages from off site, you'll need to replace "www" in the URLs above with "www.slac.stanford.edu" Non-SLAC users cannot access the "slaonly" URL.

## Beyond VM: The Next Generation

If you are still using VM or if you have questions about how to make the transition to Windows NT, Mac OS, or UNIX, then come to the VM Phase-out Fair. The fair, entitled "Beyond VM: The Next Generation," will be held February 11, 1997 between 9 am and 4 pm in the Auditorium. You will see demonstrations of the Web, News, and Eudora (which is the supported mail system on Windows NT and the Mac). On your way to the demos, ask the staff in the Auditorium Lobby your questions and see personalized demos of SLAC-supported and recommended software.

Watch for a flyer about the Fair as we get closer to February 11.

—Ilse Vinson

## Micom Switch Phaseout

The remaining Micom Switch is scheduled to be taken out of service on September 1, 1997. SCS is asking all those who are currently using a Micom connection to complete an information form that will help us determine who is now using the Micom Switch and who needs help in finding an alternative connection to the SLAC network. You can pick up a form at the SCS Help Desk.

For more information, see the file *micout memo \** on VM, or the Web site at [www.slac.stanford.edu/comp/net/micom/micom.phaseout.html](http://www.slac.stanford.edu/comp/net/micom/micom.phaseout.html)

—Ken Martell

## SLAC and SU Host International Web Conference

Lots of organizational activities are going on behind the scenes right now to bring you the Sixth International Web Conference, which will be held at the Santa Clara Convention Center, April 7-11, 1997. Bebo White of SCS is co-chair, along with Chris Quinn from Stanford.

The Web 6 conference is collaborating with Hypertext'97 and the Computing in High Energy Physics (CHEP97) conferences which take place the same week. Program papers and presentations of significant interest to the attendees of these conferences will be broadcast either live or on tape between conferences. See the web site, [www6conf.slac.stanford.edu](http://www6conf.slac.stanford.edu).

## FactinOs

### Multiple Choice Test

Which of the following is NOT in the DOE mission?

- physics research
- accelerator design
- pornography on the Web
- synchrotron physics

If you guessed "c", that is correct, but there is someone out there who still doesn't get it.

### Stanford in Chicago Time Zone

Why is Teresa Cervantes working harder to process the benefits packages? The open enrollment process deadline was midnight Nov. 22. The Chicago-based phone company closed phone enrollment on schedule at midnight Chicago time, 10 pm Pacific time. Says Cervantes: "You'd be surprised at how many people waited until 11:45 pm to complete their benefits package."

### Stanford String Quartet

returns to SLAC to perform a free concert of classical music on Tuesday, Feb 4 from 12 noon to 1 pm in the Auditorium. This was a standing room only event last year so get your seat early!

### Hot News

travels lots of ways. As an organization, we oversee the distribution of messages to all SLAC staff. Announcements can be posted on the Web, or sent to everyone electronically or hard copies can be distributed through the mail room. News stories can go into the Interaction Point. Call P. A. Moore at ext. 2605 if you want to discuss different methods to distribute your message.

### New Life Forms

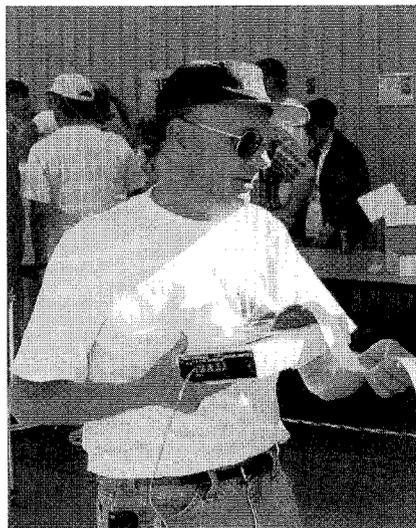
not just on Mars, but on SLAC's Physics and Engineering Building (#280). Al Kinsler says that once the retrofit was done, the gargoyles approved the job and moved in. What's next? King Kong on the Cafeteria? Toto in the Test Lab?



*And the winner is...SLAC's fastest, Michael DiSalvo, crosses the finish line with a time of 22:29.*



*Bob Getsla, Georgia Row, and Dave Hamilton are all smiles at the beginning of their 2-mile walk!*



*Tom Knight, official timekeeper checks racers' times. With 110 finishers (runners/roller bladers), that was no easy task!*

## Silver SLAC Run a Smashing Success

Fifteen in-line skaters joined 95 runners and 48 walkers to make the 25th Annual SLAC Run, Walk and Roll the largest one ever. The annual event, held this year on a sunny November 7 took place along the Klystron Gallery.

In keeping with the historical significance of the event, Ken Moore, the race originator and first ever winner, returned as the official starter. Two other early race participants were Hal Tompkins (SSRL), winner in '77 and first to break 20 minutes on the course, and Mike Fero (SLD), winner in '88, '89, and '90. Other past race participants seen in the crowd were Phyllis Olrich, the all-time women's record holder from the '77 race, Bill Divita, winner in '74 and '75, and Gerard Putallaz, third place winner in '72 and '74 who showed up on crutches to watch and cheer.

In-line skaters started the event. A tactical race developed down the south side of the gallery, with no one willing to make an aggressive challenge. After leading most of the race, Kevin Kendall was caught and passed at the last second by Keith Reynolds; both finished in 14:48, just two seconds ahead of Bryan Harris. Ginger Byam set the standard for women in-line skaters finishing in 21:20.

Two minutes after the skaters started, the runners took off. Karen Fant, running her twelfth SLAC Race, ran a steady seven-minute pace to shave almost a minute off her personal best. She finished 45 seconds ahead of Immaculata DeVivo. DeVivo, the first non-SLAC female finisher, and Chris Burge, winner in the men's category, are husband and wife. Ex-SLACer Evelin Sullivan finished third followed by Carol Chao (SSRL).

The race for first among the men was a carbon copy of the last four races with Michael DiSalvo (PCD) competing against Chris Burge (non-SLAC). Mike and Chris had each won two of the past four races with the other finishing second. Finishing third was Bobby McKee who shaved 20 seconds off his previous best time and finished 44 seconds behind DiSalvo. A very special mention goes to those who keep on running. Bob Gex completed his eighteenth running of the SLAC race.

The 48 walkers covered two miles and added much to the spirit of the day. Among the walkers were Neal Adams, winner of a 100-yard dash held at the 1978 SLAC Race, and Mary Dageforde, a runner in '77, '78, and '80.

All were greeted at the finish with music and cheers. Ribbons were awarded to SLAC runners and skaters who finished first in their respective age divisions. Non-SLAC winners received official recognition. Complete results will be published in The California Schedule and are available on the Web at <http://www.slac.stanford.edu/esh/medical/now/slacrace>

—Bob Traller

*Photos by  
Tom Nakashima*



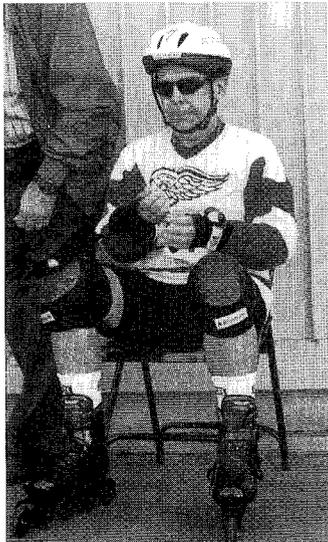
*Pat Wurster and Sylvia Ong show off the 1996 SLAC Run/Walk t-shirt, which was designed by Ruth McDunn.*



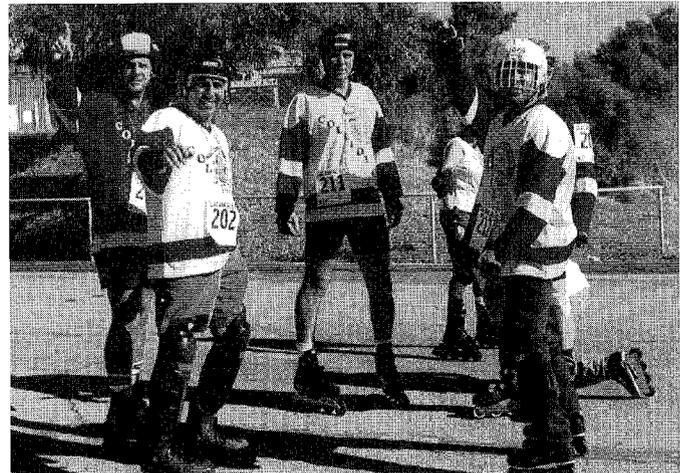
Ken Moore, official starter, was the race originator 25 years ago.



Champions all. Posing are the SLAC winners in all age categories (l to r): Bobby McKee, Greg Mitchell, Doug Keeley, Al Lisin, Michael DiSalvo (overall winner, male), Darren Marsh, Karen Fant (overall winner, female), Rene Donaldson, Nina Stolar, Carol Chao, and roller bladers Keith Reynolds (1st place, M); Ginger Byam (1st place, F). Kneeling are Andrew Gray, age 13, and Chris Constable, age 9, sons of Robin Gray and Allen Constable, respectively.



Are we having fun yet? Vince Villanueva came in 4th place in the roller blade division with a time of 15:20.



Meet the Colliders, who got a 2-minute start on the others (to avoid colliding with racers!). L to r: Keith Reynolds, Phil Garcia, Bryan Harris, and Jeff Garcia.



On your mark...95 racers and 48 walkers are poised for the signal to begin.

## Practice Makes Perfect



Are there enough musically talented SSRL staff, students, and visitors to form an ensemble for the SSRL Holiday party? Can they play Jingle Bells and Silent Night? Yes indeed, and here they are. Pictured (l to r): Alan Swithenbank, percussion, Vincent Lawrence, guitar; Jeff Moore, tenor trombone; Alan Winston, soprano recorder; John Arthur, violin; Ron Gould, bass trombone; Hope Erickson, violin, and Harry Morales, trumpet. Not pictured: Cecile Limborg, violin, and Ben Scott, keyboard. And, no, they are not for hire!

## 1997 Holiday Schedule

|  |                  |              |
|--|------------------|--------------|
| New Year's Day, 1997   | Wednesday        | Jan. 1, 1997 |
| Dr. M. L. King Day   | Monday           | Jan. 20      |
| Presidents' Day  | Monday           | Feb. 17      |
| Memorial Day   | Monday           | May 26       |
| Independence Day   | Friday           | July 4       |
| Labor Day  | Monday           | Sept. 1      |
| Thanksgiving   | Thursday, Friday | Nov. 27, 28  |
| Christmas  | Thursday, Friday | Dec. 25, 26  |
| New Year's Day 1998  | Thursday         | Jan. 1, 1998 |
| Birthday Holiday (employee's and supervisor's choice of day) |                  |              |

## Welcome Guests and New Employees

The following people joined SLAC from late October through early December: **John Bargar**, SSRL; **James Beach**, Experimental Group C; **Gerhard Buchalia**, Theory; **Jaime Carrillo**, SCS; **Chang-Hwan Chang**, SSRL; **Guang-Pei Chen**, BaBar; **Merle Cramar**, Mech Design; **Walter Dittrich**, Theory; **Valerie Halvo**, Experimental Group E; **Oswaldo Herrera**, SCS; **Hope Johnson**, ES&H; **Roger Jones**, ARD-A; **Judy Li**, SSRL; **Michael Melles**, Theory; **Daphne Mitchell**, SSRL; **James Peck**, SSRL; **Paul Raines**, BaBar; **Erickson Ramirez**, PEP-II; **Norma Sandy**, Personnel; **Oliver Stachs**, SSRL; **Marianne Stroker**, Technical Information Services; **Pei-Pei Xie**, BaBar; **Slawomir Zalog**, EFD

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## SLAC High Energy Physics Faculty Milestones

**Sidney Drell** was awarded the World Federation of Scientists' Gian Carlo Wick Commemorative Gold Medal at a formal ceremony in Lausanne, Switzerland. Drell was cited for his work in particle physics and reduction of nuclear weapons.

**Edward Garwin**, Group Leader of the Physical Electronics Group, will be on sabbatical from January 15, 1997, until July 15, 1997, to work on a research project, "Search for elementary particles with fractional electric charge, using aerosol technology." He will be conducting the research at ETH Zurich.

**Charles Prescott** recently celebrated 25 years of service to SLAC. Prescott is Group Leader of Experimental Group A. He started out as a Research Associate at SLAC in 1971 and became a Permanent Staff in 1974. In 1980, he was promoted to Associate Professor. Since 1984, he has been a Professor in the experimental particle physics, electron scattering experiments in End Station A and physics with the SLD experiment at the SLC. He also served as Associate Director of the Research Division from 1986-91. Prescott received the W.K.H. Panfosky Prize for excellence in High Energy Research in '88.

**Burton Richter** was named president of the International Union of Pure and Applied Physics, an organization which promotes international collaboration in physics, fosters free circulation of scientists, and encourages research and education. IUPAP is based in Sweden.

**Ronald Ruth** was promoted to full professor at a recent meeting of SLAC High Energy Physics Faculty. He is Group Leader of the Accelerator Theory and Special Projects Department. Ruth will take a sabbatical at CERN starting in August, 1997, to work on LEP II, the upgrade of the Large Electron Positron Collider, and on CLIC, the Compact Linear Collider.

**Rafe Schindler** was promoted to full professor at a recent SLAC High Energy Physics Faculty meeting. He is co-group leader of Experimental Group E.

—Rose Forbes