



# QUASI - PERIODICAL INTERNAL NEWSLETTER

DECEMBER 1966

## WE'RE OFF AND RUNNING

Six years of planning and four years of construction are now over. SLAC is now doing what we've been waiting a decade to do: Our two-mile beam has started to take its first peek into the world of the atomic nucleus.

### Physics Underway

Three experiments are now in process using the SLAC electron beam. At present about half of the beam time is used for these experiments, with the other half used for continued tests of the accelerator. It is estimated that by June of next year, approximately 90% of the beam time will be taken up by research.

Experiments now underway fall into two categories: electron scattering and the creation of new particles. In electron scattering, the electron beam bombards a liquid hydrogen target. The angles and energies at which the electrons are scattered after being directed at protons (the nuclei of hydrogen atoms) may help us to learn more about the nature and structure of the atomic nucleus.

In the second kind of experiment, the electrons take a back seat to such strange particles as pi mesons and K mesons. Here, the electron beam is used as a tool, a probe; it strikes a target of matter and sometimes, rather than the electron just recoiling off, some interaction takes place between the electron and the target nucleus, and these pi and K mesons are "created," bursting forth from the target nuclei. Because the energy of the electron beam is high, the energy of the mesons is high, too. These "secondary" particles are then directed toward further targets where succeeding interactions are studied.

### The Future

What this all means is that SLAC has now really tripped the starting gate into the unknown, with further knowledge and better understanding of the submicroscopic universe the carrot dangling tantalizingly at the end of our two-mile-long stick. Physics research with our machine has begun, even earlier than anticipated, and the coming year promises to be an exciting one. Ten experiments, including two of those now in process, have been scheduled for SLAC's first year of operation, to involve research teams of scientists from Stanford,

LRL-Berkeley, Cornell, CalTech, MIT, and the University of Washington. Huge pieces of research equipment--a 1-meter hydrogen bubble chamber, a 2-meter streamer chamber, a 54-inch "standard" spark chamber, three magnetic spectrometers (1.6, 8 and 20 GeV)--all have passed from the sketch pad to the assembly area.

"Imagination is the stuff of which dreams are made...." It took imagination and foresight on the part of those who first proposed the construction of a two-mile-long linear electron accelerator; it took hard work and more imagination to make their dreams our reality. And now in a sense we've come full circle--with our machine a reality, we once more step into the world of imagination, dreams, as we conjecture and experiment to try to discover more about the world around us.

## SOME CALL IT BEAUTY, SOME CALL IT EROSION CONTROL

Wildflower seeds will be broadcast on the slopes of the hill in back of the Target Area, at the former site of the cement batch plant at the 2/3 point of the accelerator, and at the Sand Hill entrance to the site. Come spring, California poppies, lupen, and mustard will festoon the landscape.

Some time ago, SLAC acquired (at cut rates) a number of seedlings from the State. A volunteer crew of green-thumbers from Plant Engineering spent a Sunday planting the trees in cans, which were then "stored" in back of the Cafeteria patio. Now these seedlings, which have become strapping trees, will be used to landscape the area south of the Target Area, east of the Data Assembly Building.

A new guard house and a permanent "monumental" street sign are under design for the Sand Hill entrance. SLAC's street address, incidentally, has been changed to 2575 Sand Hill Road (seems that someone misjudged the length of a block when SLAC was about the only building on Sand Hill Road).

This is the ninth issue of what appears every once in a while from the Technical Information Office whenever developments at SLAC warrant. The material herein is for your information and not for general publication.

## MEDICAL FACILITY TO OPEN

On December 12, Dr. Robert Armbruster, Nurse Geneva Grayson, and Medical Secretary Jeannette MacDonald will open up shop in the new SLAC Medical Facility, Room 137 of the A/E Building. The medical program at SLAC will include general pre-placement physical exams, voluntary periodic exams, special exams for personnel subject to particular hazards, treatment of occupational injuries and illnesses, and health counselling for employees.

Dr. Armbruster, who comes to SLAC under a contract with the Palo Alto Medical Clinic, has been engaged in the full-time practice of occupational medicine since the completion of his internship at Cook County Hospital in Chicago. In addition to his regular occupational responsibilities, Dr. Armbruster has been active in research and in teaching. He will be devoting half his time to SLAC's medical program. Miss Grayson will be on board full time.

If you have a medical concern of any kind, feel free to drop in at any time.



Robert Armbruster, M. D.,  
Geneva Grayson, R. N.  
Jeannette MacDonald.

## PUBLIC INFORMATION INFORMATION

Call the Public Information Office (extension 204) if you want to reserve a conference room. Then, please keep them informed of any changes in your reservation (cancellation, extension of time, visual aids needed) in order to help them keep confusion and righteous confrontations to a minimum. . . . Tours for the general public continue to be held at mutually convenient times and by advance reservation; call extension 204.

## SLAC LIBRARY'S ROTATING ART SHOW

On exhibit through the month of December in the SLAC Library are representative works of the Bayshore Arts Center in East Palo Alto. Next to be displayed are monochromatic airbrush paintings of pieces of SLAC equipment, executed by Walter Zawojski, SLAC'S Chief Illustrator.

Anyone else want to exhibit their art? Call Glenda Jones, extension 411.

## CHRISTMAS ACTIVITIES COMING UP

A SLAC Christmas show, "Santa's Follies," will be held on Friday, December 16, from 12:15 to 1:00 p. m. in the SLAC Auditorium. Skits, music, and community singing are on the program, which will feature a well-known member of the Research Division in the vital role of Santa. The posters promise a "spectacular" show - come one, come all.

And that's not all. For those who feel food is food for the soul, goodies will be laid out (the location will be announced later) on Wednesday, December 21, between 12:30 and 1:30 p. m. There will be door prizes and hostesses to bring holiday cheer, and Santa (who seems to be partial to SLAC) will again be around to ask the girls what they want for Christmas.

## NEW BUILDINGS PROGRESS

The architect for the Central Lab extension has been appointed and preliminary plans for the addition commissioned. The Title I report for the General Services Building and the Title II 90% report for the Fire Station have been submitted to the AEC for approval.

## CONFERENCES, PAST AND FUTURE

The 1966 International Conference on Instrumentation for High Energy Physics was held at SLAC September 9-10, 1966. Attended by 400 physicists representing 28 countries, including the USSR, the conference provided an opportunity for physicists to explore and share the current state-of-the-art in bubble chamber, spark chamber, and data analysis techniques.

Hardly had the wastebaskets from the Instrumentation Conference been emptied when SLAC began to think about next year's conference, the 1967 International Symposium on Electron and Photon Interactions at High Energies, to be held September 5 - 9, 1967. Plans for this meeting are still very preliminary, but it is known that attendance will be by invitation only and that about 300 physicists from universities and laboratories all over the world are expected to attend. This will be the third electron-photon conference to be held. SLAC, in hosting the meeting, is carrying on a precedent established by the previous two conferences: Both the 1963 CEA and 1965 DESY-Hamburg electron-photon conferences were held just when those laboratories had been completed and physics research begun.

## BERKELEY COMMUTERS

Tired of the Nimitz Grand Prix? Charter bus now running, Berkeley / Oakland - Menlo Park, Palo Alto, and will include SLAC if desired. Call Dr. Frank Chilton at SRI, 326-6200, extension 3580.



*Merry  
Christmas*