

# Lawrence Berkeley National Laboratory

## Recent Work

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# Lawrence Berkeley Laboratory Education Outreach UPDATE

Fall 1993/Winter 1994

Volume 2, Number 1

## To the Volunteers Education Outreach: Plans for Year Two

We are embarking on our second year of Education Outreach to local schools with as much enthusiasm as year one. The volunteers continue to extol the merits of the program and are eager to expand this effort and include more LBL staff.

During 1992-93, the LBL volunteers spent over 3,000 hours working with students and teachers from as close as Berkeley to as far away as Sloan, Iowa.

During the summer of 1993, we were hosts to a talented group of local high school students. They participated in the LBL Student Research Program, an eight-week summer internship. This interdisciplinary program provided access to the scientific community through research and administrative projects at LBL. The students' final presentations, attended by Director Shank, mentors, and parents, captured the nature of their educational experiences.

The education of our children is the responsibility of all Americans. Those who find the time to enhance the education of one student see immediate results. When a student learns a new concept, she or he is eager to share this new found knowledge with other students. The returns can be exponential. "Each One, Teach One," is a slogan being used to communicate this principle.

The possibilities for the Outreach Program are expansive. Along with our current outreach efforts, LBL volunteers can serve as conduits of information to

schools through Computer Clubs, Science Clubs, Summer Science Camps and specialized mini-academies. Such positive learning experiences can make a tremendous difference in a student's life. These experiences also provide them with options, assists them in making career choices, and in setting goals for their future. As practitioners in the scientific community, we are making a difference. Let us continue to do so.

This year I would like to enlist the assistance of volunteers to design education outreach activities that will maximize the resources of our staff. Collectively, we can focus on our many strengths, set goals, and develop new programs. The possibilities seem endless. If you have ideas for new outreach efforts or are interested in developing a program, please call me at X5640.

The first year of the Education Outreach Program was a success. Students and teachers alike continue to express gratitude and enthusiasm for our continued involvement. The outpouring of support from the volunteers was outstanding. As an educator, it was also very rewarding. I look forward to continuing our mission to enhance our educational system.

*Marva Wilkins  
Education Outreach Coordinator  
Center for Science and  
Engineering Education*

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## The LBL Student Research Program

The LBL Student Research Program hosted fifteen bright and talented high school students in an eight week internship program. Students participated in meaningful educational experiences pertinent to projects being conducted at the laboratory. The projects included medical research, physics, energy efficiency and administrative services. LBL staff served as mentors.

Jeremy Cooper, a 12th grade student at Berkeley High School, did research in the Windows and Daylighting Group. His project involved increasing the thermal efficiencies of compact fluorescent lamps. Michael Siminovitch was his principal mentor. Other mentors in the group were Chin Zhang, Jeremy Sokulsky, and Eric Pankonin. Jeremy plans to major in Business. Following undergraduate school, he plans to attend law school.

Janayla Gary spent the summer conducting a study on tire inflation and energy efficiency. Under the watchful eye of Deborah Hopkins, Energy and Environment, Janayla learned to bring a project from beginning to end. She wrote a proposal to the administration seeking permission to conduct the study. Once she had permission, Janayla designed a form requesting consent from LBL staff, parked in designated areas, allowing her to measure their tires. Janayla's study found that many tires are under-inflated. These findings are reported in the publication, "Passenger Car Tire Pressure Survey and Preliminary Report on the Impact of Under Inflation on Fuel Economy, Tire Wear, Emissions, and Safety." It is co-authored by Janayla, Deborah Hopkins and Dennis Kacy. Janayla is a 10th grade student at El Cerrito High. Upon graduating from high school, she plans to major in Electrical Engineering.

Doris Edwards worked in Accounts

Payable. In accounting, Doris tracked invoices, and did trouble shooting on accounts that had problems. Her mentors were Marie Bowman, Connie Berry and Harry Inn. Doris is an 11th grade student at Berkeley High School. She plans to attend Xavier University in New Orleans, Louisiana and major in Social Work. However, she admitted that based on her summer experience at LBL, she is having second thoughts and may major in accounting.

Tanea Williams had a rather unique assignment in Medical Research. Pamela Coxson, Life Sciences Division was her principal mentor. Her group designed a different project for each week of the program. The projects were the administration of Medical Research, Positron Emission Tomography Research and Data Analysis, and Nuclear Magnetic Resonance. She also worked with Tom Budinger, Henry VanBrocklin, Steve Derenzo, Mark Roos, Katie



*SRP Students at Lawrence Hall of Science following a lecture on the human brain.*

Brennan, Bill Jagust and Ron Huesman. Tanea graduated from Dewey High School in Oakland. She is a first-year pre-med student at Randolph-Macon Women's College in Lynchburg, Virginia.

Ian Pancham, Charmin Roundtree and Joseph Gaylor spent the summer building cosmic ray detectors to take back to their schools. They were guided by Howard Matis, Fred Bieser and Krista Marks, Nuclear Science Division. This group exemplified the team concept advocated by Ernest O. Lawrence. They worked together in all areas necessary to be successful in their project and their stay at the laboratory. In their closing presentation, "The Cosmic Ray: Seeing the Invisible," the group used members of the audience to explain the binary counting system and how the cosmic ray detector counts the pulses it receives. Ian, peer mentor of the team, is a graduate of Lick-Wilmerding High School in San Francisco. He attends Massachusetts Institute of Technology where he plans to

major in Aerospace Engineering. Charmin is a senior at Skyline High School in Oakland. She plans to major in Civil Engineering. Joseph is a senior at McClymonds High School in Oakland. He, too, plans to major in Civil Engineering.

Kevin McDonald, a senior at Bishop O'Dowd High School in Oakland, was assigned to the Beam Electrodynamics Group (BEG). His research project was in the area of measuring radio-frequency (RF) properties of accelerator components. He developed a program that allows anyone to access information about RF. His mentor, John Byrd, recently received his Ph.D in Physics. Kevin plans to study Engineering. Along with participating in the Student Research Program, Kevin spent three weeks in Europe with his family. Kevin has been invited back to work at BEG next summer. He will serve as a peer mentor for another student.

A freshman at the University of California, Berkeley, Orpheus Allen worked in the Energy Analysis Program with Stan Boghosian and Sajid Hakim. He did a study on furnace efficiency. His assignment was to make scientific data readable for analysis. Orpheus graduated from Berkeley High School last spring. He is majoring in Mechanical Engineering. If his schedule permits, he will continue to work part time with his group.

Casandra Lewis learned the basic principles used when invoicing purchase orders for the Purchasing and Accounts Payable unit of the Environment, Health and Safety Division. She processed, tracked, and updated purchase requisitions. She wrote procedures for data entry of purchase orders and blanket orders for the unit. Her principal mentor, Catherine Pinkas, recently accepted a position as Education Program Manager with the Human Genome Project. Casandra also worked closely with Carol Eaton. Casandra graduated from Berkeley High School and attends Merced Community College in Merced, California.

Michael Bess, a senior at Berkeley High School, researched the area of optic thin films in the Windows and Daylighting group. He was responsible for preparing samples and assisting with optical measurements of solar control and electrochromic coatings for windows. He learned skills in optical coating, optoelectronic and microelectronics. Michael Rubin and Sam Yao were his mentors. Michael is interested in attending Howard University in Washington, D.C.

Michael Mason worked in Magnetic Fusion Energy Group. He worked with Ian Brown, Simone Anders, and Andre Anders. A senior at El Cerrito High School, Michael plans to attend California State University Hayward where he will major in Engineering and Music

Corey Robinson, a first year student at Tuskegee University in Tuskegee, Alabama worked in Earth Sciences with Pat Williams. His work included a computer simulation of earthquake faults and mapping soil content in the experimental trench. Corey graduated from Berkeley High School. He plans to study engineering.

Tara Danielle White, a graduate of El Cerrito High School, worked in Administration with David Shepherd, Gloria Acosta, and Rosetta Daniels. She helped them in a variety of office tasks. Tara attends Contra Costa College.

Kevinn Minor worked in Energy and Environment with Munir Rashid. He tracked and inventoried the computers in the division. Kevinn volunteered for the project. He is a senior at Skyline High School. He plans to study engineering.



*Krista Marks, Engineering, and Charmin Roundtree, Skyline High, work on cosmic ray detector.*

## **Personal Note**

*I experienced immense joy working with these students. They are very talented and motivated to achieve the goals they have set for themselves. This program evolved from a one-week pilot with five students to what it was this summer. Consensus is that this is a vital program and it should continue.*

*I am extremely grateful to the LBL mentors who are excellent teacher;, the funding agencies, DOE, Richmond and Berkeley Summer Youth Employment Training Program, the Energy and Environment Division; and those at LBL who gave moral support .*

*Thanks! Thanks! Thanks!*

# Volunteers, We Appreciate You

A reception was held on September 30 to commemorate the first year of the Education Outreach Program and to honor the 150 volunteers who participated during 1992-93.

LBL volunteers and guests were welcomed by Deputy Director Pier Oddone. He praised the volunteers for their involvement with the program and applauded them for taking time to provide students and teachers with access to the rich resources of LBL.

Serving in a dual capacity, Roland Otto, Director, Center for Science and Engineering Education (CSEE), extolled the merits of the volunteer program and spoke of his experiences as a volunteer.

Steve Irick, Accelerator Fusion Research Division, spoke of his experiences as a tutor at Berkeley High School. During the fall semester, Steve tutored students in Calculus. In the spring, he decided to tutor mathematics to a student enrolled in special education. He found both experiences to be quite rewarding.

## Education Outreach Welcomes New Volunteers

A very enthusiastic group of new volunteers was welcomed into the 1993-94 LBL Education Outreach Program at the informational session held on September 29. They exemplify the same eagerness to work with students, teachers and various educational programs as the initial group did last year.

Marva Wilkins provided the new recruits with an overview of the mission, goals, implementation, and plans for the program. She encouraged them to submit ideas and assist in making the program one which reflects the vast resources of the laboratory.

Pamela Coxson, Life Sciences, informed the audience of the numerous activities she participates in as a volunteer. Pam is a mathematician and works in Medical Research. Very often, she gives presentations in other areas such as energy efficiency. Her versatility is remarkable.

Following the program, Pier Oddone and Marva Wilkins presented certificates of appreciation and 1992-93 volunteer T-shirts.

Volunteers who have not received their T-shirt please call Sarah Block at X5816.



*Dr. Pier Oddone presents a certificate of appreciation to Howard Matis, Nuclear Science Division.*

## BIOTECHNOLOGY AT CITY COLLEGE OF SAN FRANCISCO

*Pamela Coxson-Life Sciences*

Community Colleges in the Bay Area are taking the lead in developing new programs and curricula to prepare students for careers in biotechnology. The Biotechnology Consortium at City College in San Francisco has been working hard on their new program to begin this Fall. The consortium has brought together City College faculty in chemistry, biology, and mathematics with teachers from San Francisco public high schools, Genentech, Genencor, Chiron, UCSF, and LBL. Pam Coxson of the Center for Functional Imaging has been working with this group on the mathematics component of their curriculum. There is a need for volunteers who work in biotechnology disciplines to serve as mentors to high school or community college students who enter this new program. Anyone interested in being a mentor or assisting teachers with the implementation of the new curriculum should contact Marva Wilkins.

# Adult Literacy Programs

Carol Backhus-ICSD

In California more than 4.5 million adults need help to read a newspaper, complete a job application, or read directions on a medicine bottle label. California public libraries are trying to do something about this problem and are constantly seeking volunteer tutors to work with individuals who want to improve their reading skills.

Tutors ordinarily attend 15 hours of initial training and commit to a minimum of six months of tutoring. They usually meet with the learner two to three hours a week and the learner is asked to put in an additional two to three hours of work. More time is needed to prepare plans for the weekly lessons. Prior teaching experience is not needed.

The lessons are very learner oriented and do not follow a set course of instruction. If a learner needs to get a driver's license, then the tutor and learner concentrate on reading the DMV manual. If the learner wants to be able to read to his or her kids, then the learner and tutor concentrate on reading children's books.

The time spent with the learners can be very enriching. For the most part you are working one-on-one with people who for one reason or another were not able to gather

## Committee Sign-ups

Committees are being formed to plan future projects for the Outreach Program. We invite your participation: Please check committee(s). Send to Marva Wilkins, 938C.

Name \_\_\_\_\_

Ext. \_\_\_\_\_

\_\_\_\_\_ Summer Research Program

\_\_\_\_\_ Summer Science Camp

\_\_\_\_\_ Computer Club

\_\_\_\_\_ Science Club

\_\_\_\_\_ Mathematics Club

\_\_\_\_\_ Saturday Academy

\_\_\_\_\_ Daughter to Work Day

\_\_\_\_\_ Help Schools Plan Science Fairs

\_\_\_\_\_ LBL Educational Tours

necessary skills when they were younger. By working with them you are giving them the power to have more control over their lives.

If you are interested in finding more information about the literacy programs in your area, call your local public library. If they don't have a program they will know of one close by.

## Literacy Plus Program

Lorenza Espejo-Purchasing

It was summer of 1991 when I first saw an ad asking for volunteers to teach illiterate people how to read.

When I first moved to California, I hardly knew anyone and spent most Saturday afternoons in the library. It was on one of those afternoons that I noticed a sign up on the bulletin board for volunteers.

I called the Laubach Literacy Program and made an appointment to meet with the coordinator. I was eventually assigned to meet with a seven year old girl who was a little behind in her class and needed a little extra effort to catch up.

I have not really considered myself a benevolent person. I just wanted to make my extra time useful and try to find a possible career option. I thought this would be a great opportunity to see what it would be like to teach.

Although I was not teaching a class with thirty kids, it gave me an opportunity to work with an actual student.

I loved working with her. It was sometimes frustrating to go over the simplest things with her, but as time went on, I saw improvements gradually coming into fruition. She went from reading simple words in my notebook to actually reading children's books.

I will not forget the day when she actually grabbed a page I was reading to her and started reading it herself. Her father walked in on us unexpectedly, and with great awe and admiration watched his daughter read. I almost cried in front of them.

After that session, I sat in my car for a long while and cried.

# Volunteer Requests

Tutors at Martin Luther King Junior High School, Berkeley.

Help Project Interface plan its Science Fair, Oakland.

A Team Teacher in Biology at El Cerrito High School.

Geometry Tutors at El Cerrito High School.

Math Tutors at Berkeley High School.

Career Day speakers at El Cerrito High School for on-going year long program.

Tutors for Malcolm X School Partners in Education Program, grades 4,5, & 6.

There are also numerous volunteer placements in the Berkeley schools in all areas.

Please call Marva Wilkins at X5640 for more information if you are interested.

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Editor

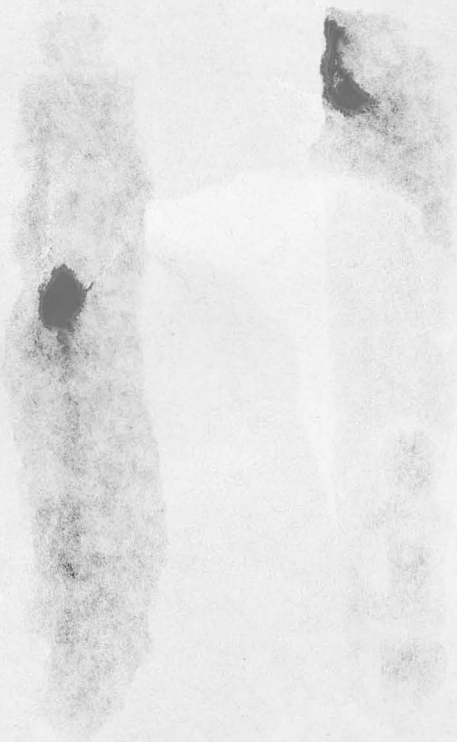
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