

NewsLetter

Week of July 3, 2006

Vol. 7, No. 14



Report impediments in the workplace ... and get help

Need help removing an impediment to getting work done? The Laboratory's new Barrier Removal Program is an automated process through which employees can report real or perceived local problems, or barriers, that impede their ability to get work done or to get it done as efficiently as possible.

Employees are promised feedback within 24 hours of an online submission. The response will provide an immediate solution, offer an alternate approach or describe how the issue is being addressed. If the barrier cannot be easily removed or is beyond the scope of the program, the submitter will be notified.

For more information about the program, go to the Barrier Removal Program Web site at <http://int.lanl.gov/orgs/hsr/nobarriers/> online.

Nominate deserving students and mentors for Distinguished Performance awards

Send nominations for 2006 Distinguished Performance Awards for students and mentors to the Science and Technology Base Program Office (STBPO).

The award recognizes outstanding performance by both students and mentors. Students and mentors who are part of the High School Cooperative (Co-op), Undergraduate (UGS), Post-Baccalaureate (Post-Bac), Graduate (GRA) or Post-Master's GRA programs can be nominated. The nomination covers distinguished performance from Aug. 1, 2005, to the present. The deadline to submit nominations is 5 p.m. July 14.

To read an all employee memo, which includes contact information and nomination criteria, go to http://int.lanl.gov/memos/2006/06/LANL_ALL2003.PDF online.



Daniel Seitz, left, of Space Instrumentation Systems (ISR-SIS) and Fergus Glen of Space Data Systems (ISR-SDS) install the payload into the Cibola Flight Experiment (CFE) satellite, the newest and smallest in the Laboratory's series of research satellites. Los Alamos is responsible for all aspects of the mission, including the payload, which has been under development at the Lab for the past six years. The satellite is scheduled for launch in October. Photo by Diane Roussel-Dupre, Space Data Systems (ISR-SDS)

Cibola Flight Experiment prepares for October launch

by Nancy Ambrosiano

The newest and smallest in the Laboratory's series of research satellites currently is on site and preparing for a late October launch.

The Cibola (pronounced see-bo-la) Flight Experiment in the International, Space and Response (ISR) Division centers on the design, construction, and flight of a small satellite whose primary mission is to serve as a technology pathfinder for the Department of Energy/National Nuclear Security Administration's Office of Nonproliferation Research and Development. "Los Alamos is responsible for all mission aspects including the satellite and the payload, which has been under development at the Lab for the past six years," said Diane Roussel-Dupre of Space Data Systems (ISR-SDS), the project leader.

CFE is the fourth satellite project undertaken by DOE/NNSA. "These small 'pathfinder' efforts are combinations of science and new technology demonstration platforms that pave the way for the insertion of new technologies into future DOE/NNSA, Department of Defense, and NASA space missions," she said.

The CFE satellite will be launched by the U.S. Department of Defense Space Test Program (STP) in October on the U.S. Air Force Evolved Expendable Launch Vehicle using the vehicle's Secondary Payload Adapter that allows up to six small satellites to be launched as 'piggyback' passengers with the larger spacecraft. Launch services for all four of these satellite projects have been provided by STP.

As launched, the satellite will measure a mere 24 by 24 by 39 inches and weigh only 350 pounds. Once in orbit, it will deploy four solar panels, which will provide 110 watts of power and then unfurl two of its four science antennas to reach out more than ten feet. The other two antennas will deploy directly from the spacecraft body.

While the antenna array looks much like the familiar TV aerials that adorn many rooftops, the similarity stops there as they are deployed by an inflatable structure that hardens when it is exposed to the cold of deep space. Such a technique represents groundbreaking technology, which is the result of a partnership with the Los Alamos team and L'Garde, a Southern California company that specializes in inflatable space structures.

The antenna array dominates the satellite and will provide exquisite radio frequency data from Earth, but the heart of the experiment lies in the supercomputer that will process the data in orbit.

Traditional satellite systems rely either on a "store and forward" arrangement, which records signals for later playback, much like a tape recorder, or they rely on a "bent pipe" scheme where the data are rebroadcast to the ground similar to the way a cellular telephone works. Both of these techniques require significant resources to relay all of the data to the user on the ground.

By processing data on the space vehicle, refined answers rather than raw data are transmitted back to Earthbound researchers. The computer is based upon an emerging technology known as field programmable gate arrays, which can be "reconfigured" or reprogrammed in orbit, much like the desktop computer, though an FPGA-based computer is roughly one hundred times faster than what currently is available to spaceflight.

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Los Alamos
NewsLetter

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For Your Safety



Walking is great exercise, and with the warmer weather, more people are out enjoying a stroll. Like any other outdoor activity, walking has its dangers. Following are some safety tips for walkers:

- 1. Always walk on the sidewalk.** If there is no sidewalk and you have to walk in the road, always walk facing traffic, so any cars that might go out of control can be seen.
- 2. Dress to be seen.** Brightly colored clothing makes it easier for drivers to see a pedestrian during the daytime. At night, wear special reflective material on shoes, cap, or jacket to reflect the headlights of cars.
- 3. Crossing the street safely.**
 - Cross only at corners or marked crosswalks.
 - Stop at the curb or the edge of the road.
 - Stop and look left, right, then left again before stepping into the street.
 - If a car is coming, wait until it goes by. Then look left, right and left again until no cars are coming.
 - If a car is parked where you are crossing, make sure there is no driver in the car. Then go to the edge of the car and look left-right-left until no cars are coming. Keep looking for cars while crossing, and remember, walk. Don't run.



Photos by LeRoy N. Sanchez

Students meet, talk with Director Anastasio

Students are an important asset to the Laboratory. That was the message Laboratory Director Mike Anastasio gave to students at a meeting at Los Alamos High School.

Anastasio encouraged students to take advantage of the local community, make friends, and make sure their internship at Los Alamos is a rewarding experience.

Anastasio said that 25 percent of current employees were once student interns. "You are important to our future. It is important to us that you have a rewarding experience, and we want you to come back as either students or employees," he said.

He also elaborated on the importance of mentors and the exciting opportunities and resources available to students at the Laboratory. "This is an exciting place. Get your head up and look around," Anastasio said.

A question-and-answer session followed the talk in Duane W. Smith Auditorium at the high school. Topics discussed included administrative safety issues, hiring practices through the transition, the Laboratory's budget, and the future of general science at the Laboratory.

Los Alamos National Laboratory NewsLetter

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Los Alamos National Laboratory is a multidisciplinary research institution engaged in strategic science on behalf of national security. The Laboratory is operated by a team composed of Bechtel National, the University of California, BWX Technologies and Washington Group International for the Department of Energy's National Nuclear Security Administration.

Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health and global security concerns.



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One more transition



by Tom Bowles,
chief scientist

In this time of transition at the Laboratory, I wanted to let you know of a change that affects the Chief Scientist Office. Starting in early July, I have agreed to go on change-of-station to serve as Governor Bill Richardson's science adviser. This is a one-year position that is renewable up to a total of three years. My primary responsibilities will be to advise the governor on science and technology-related issues and to put forward ideas about how we can improve science and technology in the state. I will remain a Lab employee while on change-of-station and will be in close contact with our scientific staff at the Lab on science and technology issues during my time as science adviser.

The decision to accept this position took some time as I felt I have commitments to our scientists to ensure that science is strongly represented under Los Alamos National Security, LLC. While I am confident that LANS will strongly support and encourage great science at the Lab, it also is true that LANS has many issues to deal with in operations in the short term. Thus, it is important that there be a strong champion for science while LANS focuses on making improvements in Lab operations. Dave Sharp has agreed to step up as the chief scientist. With the strong support for science from Dave Sharp, Terry Wallace, and

others, I am confident that the commitments my office made to our scientific staff will be honored, and I feel I can accept this new position in good faith.

I believe I can do a great deal of good in driving stronger connections in New Mexico between the two national labs, the universities, and industry as a means to strengthen S&T and the economy in the state. This kind of proactive effort on the part of the Lab is fully supported by Director Mike Anastasio and LANS and will in turn benefit S&T at the Lab. Thus, I am looking forward to serving as the governor's science adviser. I also look forward to returning to the Lab full time once my tenure as science adviser concludes.

CFE ...

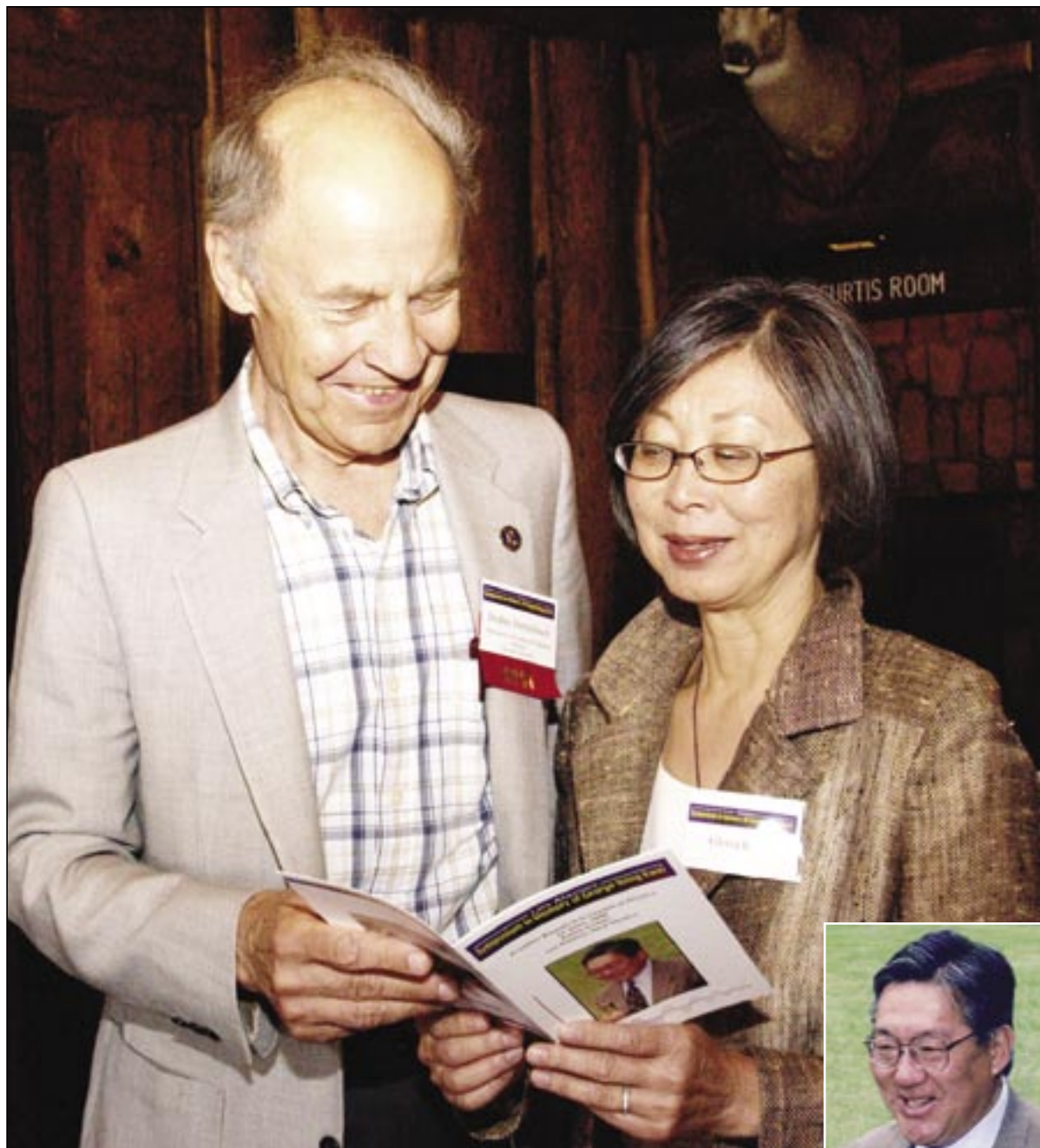
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In addition to the L'Garde antennas, CFE also is flying seven other new technologies for space flight validation. Surrey Satellite Technology Ltd. is building the small host satellite, CFESat, based upon Surrey's disaster monitoring constellation and Topsat mission satellite designs.

In addition to validating these new technologies, the CFE payload system also will have a science mission to study lightning, ionospheric disturbances and other sources of radio frequency atmospheric noise. CFESat will be placed into an orbit with an altitude of 350 miles and an orbital inclination that will allow observation of land areas as far north as the central United States and as far south as the tip of Africa. This orbit provides maximum time on target for these sources of rf signals.

Symposium commemorates former Lab scientist Kwei

Dudley Herschbach of the Department of Chemistry and Chemical Biology at Harvard, and Gloria Kwei look at the official program for the symposium in memory of her husband George Hsing Kwei held recently at Fuller Lodge in Los Alamos. Herschbach talked about molecular beam chemistry and was one of several invited guests who spoke at the symposium. Gloria Kwei formerly headed the Laboratory's Benefits Office. The gathering, which included a buffet dinner and a concert, included talks on chemical physics and Kwei's scientific achievements over three decades working at Los Alamos. Los Alamos Medal recipient and Senior Laboratory Fellow George Cowan reminisced about his experiences working with Kwei, who passed away in June 2005. Other speakers who worked with Kwei talked about how Kwei's studies of molecular dynamics and structure have influenced current scientific research. Born in Hunan Province in China, George Kwei came to the United States as a young boy and graduated from Harvard in 1959. With Herschbach, Kwei conducted experiments using molecular beams to resolve chemical reaction dynamics. Kwei joined the Laboratory in 1974 as a research scientist; he later became deputy associate director for chemistry, Earth and life sciences. Kwei moved to Lawrence Livermore National Laboratory in 1994 and returned to Los Alamos in 1997 for a two-year assignment as a special assistant for the Director's Office. He returned to Livermore in 2000 and retired in 2002. Photo by LeRoy N. Sanchez



George Kwei



Q: Each year, numerous individuals come to the Laboratory to speak to employees on a variety of topics. What kind of talks would you like to see more of at the Laboratory and why?



Kristin Patterson of the Education and Post-doc Office (STBPO-EPDO)

I would like to see more talks from the many different divisions of the Lab that you don't usually hear about. There are so many interesting projects going on in the areas of

biology, water quality, and even archaeology at the Lab. Offering more talks in these areas might provide people with a better understanding of other types of Lab research.



Anita Archuleta of Space Instrumentation Systems (ISR-SIS)

During this time of transition, it would be nice to have a famous, highly motivated speaker to speak to all employees at the Lab. This might help to

bring morale up for everyone.



Maryana Eames of Leadership and Development Training (CT-LDT)

I would like to hear talks about advances in space research, astrophysics, biophysics, and genetics. I also would like to see more symposiums with distinguished

scientists from the Lab and elsewhere. And I would like to see the new Lab management address the work force in a panel discussion where employees could ask questions in an open forum.

PEOPLE



Nesmith returns to Lab as first Foreign Nationals Program coordinator

Lab retiree **Jim Nesmith** returns to the Lab as the Foreign Nationals Program coordinator in the Science and Technology Base Programs Office (STBPO). Nesmith brings with him more than 23 years of experience with the international community.

Nesmith, who worked for the U.S. Immigration and Nationalization Service as an examiner and political asylum officer, came to the Lab in 1990, where he worked for nine years as head of visitor and immigration services. During his tenure he received a Distinguished Service Award.

He retired in 1999 and moved with his family to Lubbock, Texas, where he was International Faculty Counselor at Texas Tech University.

Nesmith returns to Los Alamos to continue strengthening the foreign nationals program, serving as the crucial liaison between foreign nationals and the organizations that host them.

"This Lab feels strongly about the importance of foreign nationals," said Nesmith. "I hope that I can contribute to minimizing problems and increase the communication between organizations and the foreign nationals who work here."

According to Terry Lowe of the Contractor Assurance Office (CAO), and the former program director of STBPO, the Laboratory has more foreign national employees than any other national laboratory. He said Nesmith's position as Foreign Nationals



Jim Nesmith

Program coordinator was created in recognition of the need to maintain this element.

Nesmith believes that the Lab's history is one of the unifying elements for the foreign national community. From the very beginning of the Manhattan Project to today, foreign nationals have been a critical factor in the accomplishments of this lab, he said.

"I have never worked for an organization with such diversity in its work force," said Nesmith. "Here, science is the bridge. It is the common identifier that gives this Lab cohesion. Science crosses the boundaries and makes this place unique ... It is so great to be back. I know people are going to get sick of hearing that, but it's true."



Calling it quits after 33 years

by Kathy DeLucas

1973 The year Skylab was launched and the first Watergate Hearings were broadcast live on television. Michael Oldfield released "Tubular Bells." The Exorcist and Deliverance were the film industry's top money-makers that year. Barnaby Jones, Kojak, and The Six Million Dollar Man debuted on television. American talk show host Carson Daly was born, and artist Pablo Picasso died that year. Secretariat became the first Triple Crown Winner since 1948, the military draft ended.

It also was the year Los Alamos hired one of the Lab's first female engineers. Arriving in Los Alamos in 1973, Brook Davis was hired directly into a group called Engineering-4. Her first job was to assist with the construction of the Los Alamos

*Los Alamos has been
a great place to live and to work.*

Meson Physics Facility, or LAMPE, target area and to help bring up the accelerator at Technical Area 53. Although her hiring as the first woman engineer can't be verified, she points out that women performed engineering tasks during the Manhattan Project, even though they may not have been educated in an engineering field.

Throughout her career, Davis has enjoyed diverse jobs at the Laboratory. A favorite part of her job was seeing projects she managed or worked on actually being constructed. One of those buildings was the Contained Firing Facility at TA-16. Built in 1987, the CFF cost nearly \$20 million and provided contained firing bays, a central diagnostic control room, and firing vessels for high explosives experiments.

She retired from the Space and Site Management Office after a career that spanned more than 33 years, using her civil engineering education in an alphabet-soup of divisions: SSMO, PM, FEE, FSS, ENG, WX, and P. Much of her satisfaction comes from the "green" side of engineering. She helped implement the Environmental Management System for SSMO, and worked on Labwide sustainable design guidelines to encourage Leadership in Energy and Environmental Design or LEED in new buildings. At one time, she worked in the Solar Group and helped to develop a computer program to analyze energy and thermodynamic loads on buildings — a program that still is in use today, she says, albeit now running on PCs instead of mainframes.

For Davis, Los Alamos has been a great place to live and to work. She has enjoyed listening to lectures on subatomic



Brook Davis

physics and is fascinated about the way the scientists measure things based on inference and not by touching, feeling, or direct observation.

"It's been amazing to watch all the cutting edge science that has taken place over the years," Davis said. "It has just been particularly fascinating to watch all the different chemical, biological, and material science that has gone on to simulate weapons tests that we can't do anymore."

Davis came to the Laboratory from San Francisco, where she was the first public works female engineer. After retirement, Davis plans to quilt, travel, tap dance, and perhaps take some college classes.

Drought increases encounters with wildlife



This mountain lion recently climbed a tree in the S-Site area after being stunned when he struck a fence. After being inspected by a state Game and Fish officer, the cat was allowed to continue on his way. Photo by Manny L'Esperance, Response Services (ER-RS)

by Erika Martinez

Drought conditions across New Mexico and the Southwest has increased the chances of humans encountering wildlife migrating to areas in which they normally would not attempt to go looking for food.

Several animals have been spotted in local public areas. Recently, a black bear was seen on East Jemez Road; mountain lions were observed at S-site and at Technical Area 54; and elk also were spotted at TA-21.

Hikers, joggers, runners, and bicyclists need to take extra precaution when attempting to proceed on trails in wooded areas. Employees also need to be aware of their surroundings when they exit their office buildings. According to James Biggs of

the Environmental Protection (EP) Division, "If a large predator is encountered, the best thing to do is remain calm. Slowly back away from the animal. It is never a good idea to turn and run from an animal," he said.

If attacked by an animal or bitten by a snake, employees should immediately seek medical attention and then contact Emergency Response (ER) at 7-6211. The employee's line manager also should be notified of the incident. Report animal sightings to Biggs at 5-5714 or to Leslie Hansen of the EP Division at 5-9873.

For more information on wildlife encounters or sightings, see the June 7 Daily NewsBulletin at http://lanl.gov/news/index.php?fuseaction=nb.story&story_id=8534&nb_date=2006-06-07 online.