

Los Alamos  
NATIONAL LABORATORY

# NewsLetter

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## Water, zero gravity and a dose of curiosity



Former Laboratory technical staff member Don Pettit talks about his science experiments and life aboard the International Space Station at a recent Director's Colloquium at the Laboratory. Photo by Edwin Vigil

by Todd Hanson

Astronaut Don Pettit recently showed a Laboratory audience how a little water, some zero gravity conditions and a healthy dose of scientific curiosity can go a long way toward learning something new about the physics of the Universe.

Pettit, a former Los Alamos staff member and current NASA astronaut, served as science officer on the International Space Station in 2003. He was at the Laboratory to give a Director's Colloquium.

Delayed by the disastrous Columbia space shuttle crash more than a year ago, the crew of Expedition Six was required to stay on the station longer than they had planned. During his five-month stay, Pettit conducted a series of observational experiments that he dubbed "Saturday Morning Science," because it was science of opportunity done at the discretion of the scientists onboard using simple materials that would not impact the programmatic supplies. The value of these experiments rested not in the rigor of the experiments, but in their ability to provide insights into the counter-intuitive nature of the space station's reduced gravity environment.

In his colloquium, Pettit showed just how counter-intuitive and intriguing these simple experiments could be. Using a container of water and a looped length of wire to create sheets and even spheres of water, Pettit conducted experiments that showed how

the application of external forces and energies, as well as the introduction of substances, influenced the water in various ways. Air blasts from a syringe caused turbulence in water spheres. The application of a soldering iron heating element to the wire edge caused Marangoni convection. Sodium chloride solution crystalized and when dried and added to a bag of water, quickly clumped together.

A highlight of the colloquium was an amusing video clip of Pettit sitting in the space station and "eating" his afternoon tea by catching spheres of liquid tea in a pair of chopsticks and casually dropping them in his mouth. The image delighted the audience and fit well with Pettit's somewhat technical, but nonetheless entertaining presentation.

Toward the end of his presentation, Pettit turned his attention to the world he had witnessed outside the space station. He displayed a number of digital photos he had taken of stellar objects, aurora and even the world's great cities. Taking questions at the end of the presentation, Pettit also touched on the new direction President Bush's recent directive has given NASA and some of the implications of following that new course.

Pettit remained in Los Alamos overnight and gave another presentation the next day for students at the Los Alamos Middle School.

For information about the Director's Colloquium program, go to [stb.lanl.gov:8080/woserver/web?pg=/program/colloquium/upcoming.xml](http://stb.lanl.gov:8080/woserver/web?pg=/program/colloquium/upcoming.xml) online.

## Laboratory technology helps power Rover on Mars

by Jim Dannekiold

A little bit of plutonium from the Laboratory is keeping NASA's Mars rovers warm and ready to rove despite the frigid Martian temperatures.

In fact, the Spirit and Opportunity rovers can stay warm and keep collecting data for nearly five times longer, thanks to about an ounce and a half of Los Alamos plutonium-238.

Los Alamos' Pu-238 Science and Engineering (NMT-9) Group made eight lightweight radioisotope heater units each for the Spirit and Opportunity rovers. Each of the 16 units contains just under one-tenth of an ounce of plutonium, and each pumps out a continuous one watt of heat as the plutonium decays.

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This full-resolution image taken by the panoramic camera onboard the Mars Exploration Rover Spirit before it rolled off the lander shows the rocky surface of Mars. Scientists are eager to begin examining the rocks because, unlike soil, these "little time capsules" hold memories of the ancient processes that formed them. The lander's deflated airbags can be seen in the foreground. Data from the camera's red, green and blue filters were combined to create this approximate true color picture. Image courtesy of NASA/JPL/Cornell



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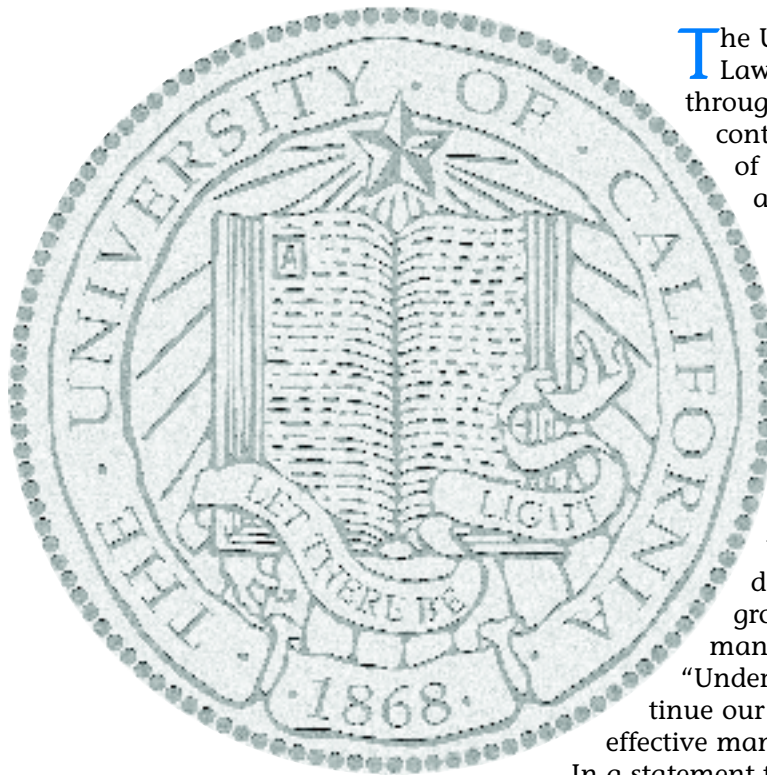
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# UC signs contract extension to manage Berkeley Lab



The University of California will run Lawrence Berkeley National Laboratory through Jan. 31, 2005, under the terms of a contract extension with the Department of Energy. The university has been operating the Berkeley lab under a contract extension that expired Jan. 31.

"This contract extension allows the University of California to continue its strong partnership with the Department of Energy in managing the Berkeley lab on behalf of the federal government," UC President Robert Dynes said.

"We have a long tradition of scientific and engineering excellence at Berkeley lab, and we are tremendously proud of the laboratory's ground-breaking achievements in so many fields of inquiry," said Dynes. "Under this contract extension, we will continue our commitment to scientific excellence, effective management and public accountability."

In a statement to Berkeley lab employees, Dynes thanked them for their work and urged them to continue to remain focused on their work and the mission at the laboratory. "The work you are doing at Berkeley lab is tremendously important to UC, the broader scientific community, California and our nation," said Dynes. "You are on the leading edge of solving some of the most important scientific and engineering challenges that we face. In addition, the research and educational mission of Berkeley lab has led to strong partnerships with the UC campuses and many other educational institutions, expanding the circle of those who benefit directly from the excellence of this laboratory's programs."

UC also operates Los Alamos and Lawrence Livermore national laboratories for DOE. The Department of Energy recently announced extensions and competitions for the management and operating contracts for several of its science and national defense laboratories. The DOE news release notes that the contract to operate Los Alamos will be competed as has been previously announced. The university's contract to operate Los Alamos expires Sept. 30, 2005.

To read the UC news release, go to [www.ucnewswire.org/news\\_viewer.cfm?story\\_PK=3552](http://www.ucnewswire.org/news_viewer.cfm?story_PK=3552) online. To read the full text of Dynes' statement, go to [www.lanl.gov/orgs/pa/newsbulletin/2004/02/03/Dynes\\_LBL\\_contract\\_ext.pdf](http://www.lanl.gov/orgs/pa/newsbulletin/2004/02/03/Dynes_LBL_contract_ext.pdf) (Adobe Acrobat Reader required). And to read the DOE news release, go to [www.energy.gov/engine/content.do?BT\\_CODE=PR\\_PRESSRELEASES](http://www.energy.gov/engine/content.do?BT_CODE=PR_PRESSRELEASES) online.

## Los Alamos NewsLetter

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Los Alamos enhances global security by ensuring safety and confidence in the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and improving the environmental and nuclear materials legacy of the Cold War. Los Alamos' capabilities assist the nation in addressing energy, environment, infrastructure and biological security problems.



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## For Your Safety

### Aerosol lubricants can flash if sprayed on energized shredders

Aerosol shredder lubricants that contain extremely flammable propellants are no longer manufactured and should be removed from stores for proper disposal to prevent their use on energized shredders. Lubricants such as silicone spray may contain liquefied petroleum gas, an extremely flammable propellant that can flash if sprayed on energized paper shredders or any other energized electrical equipment. Read the label and review the product Material Safety Data Sheet before using any product to ensure it is safe and appropriate for use, and never use a product if the product cannot be used in the prescribed manner or in association with required equipment.

A Laboratory technician received a minor burn on his left forearm last fall when he sprayed an aerosol lubricant on a sheet of paper to lubricate an energized shredder. The material flashed, blew off the top of the shredder cabinet and started a small fire that the technician was able to extinguish with a Halon extinguisher. The shredder had been obtained from the excess property yard without an operator's manual, and a MSDS for the lubricant was not on hand. Subsequently, the shredder was removed from service, and the remaining stock of the shredder lubricant was discarded. The process for retrieval of office equipment from the excess salvage yard was reviewed and will be revised to include electrical inspection of office equipment by technically qualified personnel to ensure the safety and operability of the equipment before it is re-issued.



# Developing the next Leonardo of Leadership Course strives to sculpt managers into leaders

*"Leadership is the art of accomplishing more than the science of management says is possible." — Colin Powell*

by Kathy DeLucas

The Director's Development Program staff are now accepting nominations for those interested in developing the art of leadership. The DDP, a succession management program to prepare a pool for the Laboratory's future leadership, has 18 managers currently enrolled in the class of 2003. The program is a component of the Laboratory's Leadership Effectiveness and Development System. LEADS is being developed as part of the Director's Performance Improvement Program or DPIP, according to Project Leader Karen Ross.

"DDP experiences are designed to provide interaction with participants to further develop competencies, attitudes and skills to be increasingly effective leaders," Ross said. "It does mean shaking up the norms a bit."

DDP offers individualized assessments and leader potential analyses; a Director's leadership workshop; competency workshops on current, relevant topics; brown-bag learning exchanges; cohort learning sessions and opportunities; developmental assignments; and ongoing mentoring and coaching on a one-to-one basis.

"DDP has given me an incredible set of skills and a degree of self-awareness that will pay benefits for the rest of my career," Deputy Division Leader for Applied Physics and current participant Joe Martz said. "The



Joe Martz, deputy division leader for the Applied Physics (X) Division, makes a point at a recent Director's Development Program brown-bag lunch meeting. Fellow DDP participants Paul Pan, group leader for Stockpile Complex Modeling and Analysis (D-2), and Paul Gilna, group leader for Genomic Sequencing and Computational Biology (B-5), listen to Martz's comments. Photo by LeRoy N. Sanchez

combination of assessment, coaching, mentoring and management training simply is unique to my experience at Los Alamos."

Having successfully been selected for his current position, Martz credits DDP as his single most important resource in transitioning to the new position.

Laboratory Director G. Peter Nanos has committed resources and time to the program. "My vision is that the institution will come to respect excellence in its leaders just

as highly as it regards the scientific and technical acumen that underpins our technological accomplishments," Nanos said.

"Managers who want to be in the 2004 DDP must self-nominate, because leader development demands intense personal initiative and commitment," Ross said. Interested candidates complete written forms and must receive the endorsement of their supervisors for the time commitment, usually about 12 months depending on individual assignments. The program will stop taking nominations March 15. The nomination package, including forms, are located at [int.lanl.gov/orgs/hr/success/apply.shtml](http://int.lanl.gov/orgs/hr/success/apply.shtml) online.

To qualify for self-nomination, individuals must

- be a UC regular employee;
- hold or have held a position at group management level or above, or the equivalent (includes deputy group leaders, program managers, and those holding or having held acting assignments in these capacities);
- have demonstrated support of Laboratory values, leadership promise, interpersonal skills, achievement of results and orientation towards personal development;
- gain the endorsement by any manager at least one level higher and;
- obtain signature of nomination package by line manager.

## Management training program revamped

by Edwin Vigil

As part of Laboratory Director G. Peter Nanos' Director's Development Program initiative, Training and Development (HR-TD) kicked off the new year with a re-tooled version of the Laboratory's Required Management Training program. The new initiative now is called the Group Management Development program.

A requirement for all new group-level managers, the Group Management Development program is aimed at giving group leaders the tools and training they need to succeed. The program is built around six modules: new group leader orientation; business stewardship basics; managing and supervising people; unclassified security (ISSM, cyber and general); health, safety and environmental issues for managers; and business systems for new managers (computer training).

The audience for this program includes new group leaders, incumbent group leaders and those who may aspire to become group leaders.

"We did a job-task analysis at the group leader level and developed our curriculum based on what tools and training group leaders needed to do their jobs," said Michael Benelli of HR-TD.

In the old program, participants spent four full days in training in order to meet all the requirements. In the new program, attendees now can take the training over several days within a period of two months. Most classes are four-hours long with the exception of the business-systems training on computers, which is one full day (eight hours) and the managing people module, which is one and one half days (12 hours) long.

"The RMT used to be four full days, but now under the GMD at most it is one day per week over a few months," Benelli said. "Given the changes with the GMD, we still would like to have new group leaders complete their training in 60 days," he added.

In addition to the improved curriculum and flexible schedule, the GMD also allows participants with a mastery of any of the particular courses the option to waive a training module with their division leader's approval. Group leaders can waive a course by filling out and completing a waiver form with the list of waived courses and obtaining their division leader's signature. The waiver form then becomes part of the new manager's training and qualification file, where it can be used by the Employee Development System to send out updates and reminders to the employee about any additional required training he or she may need to complete, Benelli explained.

"The new program also is open to team leaders who may be working on becoming group leaders," said Benelli. "It can help prepare them for future management opportunities."

The new program began this month.

For more information and a link to enroll, go to [www.hr.lanl.gov/TD/ManagerDev/](http://www.hr.lanl.gov/TD/ManagerDev/) online.

## Krikorian to receive LA Medal Thursday

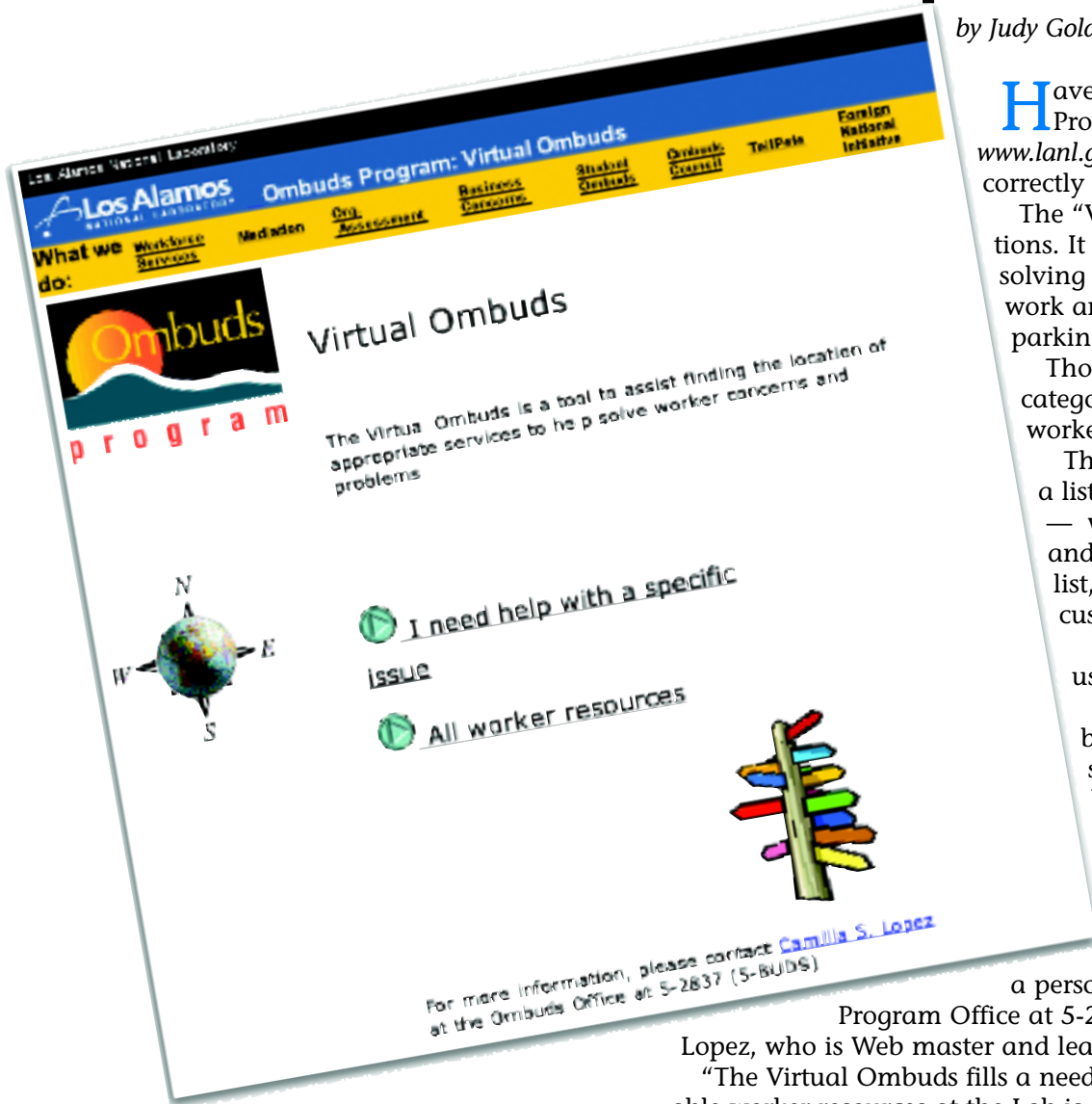


Nerses "Krik" Krikorian will be honored as the recipient of the 2003 Los Alamos Medal at a presentation Thursday.

The ceremony begins at 3:45 p.m. in the Duane Smith Auditorium at Los Alamos High School.

# Virtual Ombudsman provides options

by Judy Goldie



Have a concern? Or maybe just a question? The Ombuds Program Office has developed a self-guided Web site at [www.lanl.gov/orgs/ombuds/](http://www.lanl.gov/orgs/ombuds/) to help you. (These pages will not display correctly with Netscape Ver. 4.8 or older on Macintosh computers.)

The "Virtual Ombudsman" site offers myriad routes and suggestions. It is a tool to assist in locating appropriate services helpful in solving concerns and problems — in the privacy of an individual's work area, at a convenient time and without the risk of losing a parking space.

Those accessing the site can choose from two general-category options: "I need help with specific issue(s)" and "All worker resources."

The "I have a question" selection, for example, routes users to a listing of topics that range from "abuse of property" to "waste" — with discrimination, fitness, problems with management — and many others. Once the user has made a selection from the list, a page of resources appears on the screen, including discussing concerns with appropriate managers.

The other avenue works in much the same way, leading the user to increasingly specific information.

The site was developed using work-force trends observed by Ombuds staff, noted Ombudsman Bruce MacAllister. The site offers information on the subject areas that most often bring folks into the office, added MacAllister.

The site was developed to provide members of the work force an option, much like the Ombuds Hotline (7-9370) — to fill a need and provide a service, said MacAllister.

"If your questions or concerns can't be addressed via this method, or if you would prefer to sit down and talk to

a person, face to face, please feel free to contact the Ombuds Program Office at 5-2837 to arrange an appointment," said Camilla Scavenius-Lopez, who is Web master and lead for the Virtual Ombuds project.

"The Virtual Ombuds fills a need right now, but it only scratches the surface as far as available worker resources at the Lab is concerned. What you see is phase one of the Virtual Ombuds project, and the Ombuds staff encourage people to contact the Ombuds Program Office with missing referrals, etc., so we can keep expanding the service," said Scavenius-Lopez.

## Laboratory technology...

continued from Page 1

Housed inside the rover fuselages, called Warm Electronic boxes because they provide a temperature-controlled environment, the heater units keep electronic and mechanical components warm enough to function reliably in the bitter cold of space. They transfer heat directly to the rover systems and instruments, without moving parts or electronic components.

The heater units are the latest in a long line of plutonium heaters and thermal batteries fabricated at Los Alamos for all of NASA's deep space probes, as well as for the Sojourner rover, which explored the red planet for three months as part of NASA's Pathfinder mission in the summer of 1997. The heat comes from plutonium-238, the shorter-lived and much hotter cousin of weapons-grade plutonium, or plutonium-239.

Temperatures on the Martian surface at the rover landing sites can vary from about 70 degrees Fahrenheit in the daytime to 146 degrees F below zero at night. Los Alamos designed the heater units to keep the rovers between 40 below and 40 above; temperatures inside the Warm Electronics boxes have remained higher than a toasty four below zero.

"The constant heat provided by the lightweight radioisotope heater units will allow both rovers to gather data on the surface of Mars for at least 90 days," said Liz Foltyn of NMT-9. "Without that supplemental heat, the mission could last only 20 Mars days."

Heating each rover's components are small electrical heaters, excess heat from the electronics and the eight Los Alamos heater units. At night, with solar panels shut down,

rover heaters rely solely on rechargeable batteries for power. The constant heat from the plutonium units greatly extends battery life, because the electrical heaters don't need nearly as much battery power.

Each cylindrical heat source consists of a hot-pressed pellet of plutonium oxide, a platinum-rhodium vented capsule, a pyrolytic graphite insulator and a tightly woven, pierced fabric graphite aeroshell assembly that protects the fuel from impact, fire or atmospheric re-entry. The units are roughly one inch in diameter and one and one-quarter inches long. The Warm Electronics Box is double-walled with panels of alloy honeycomb and epoxy graphite laminate. Between the walls is an insulating foam called aerogel.

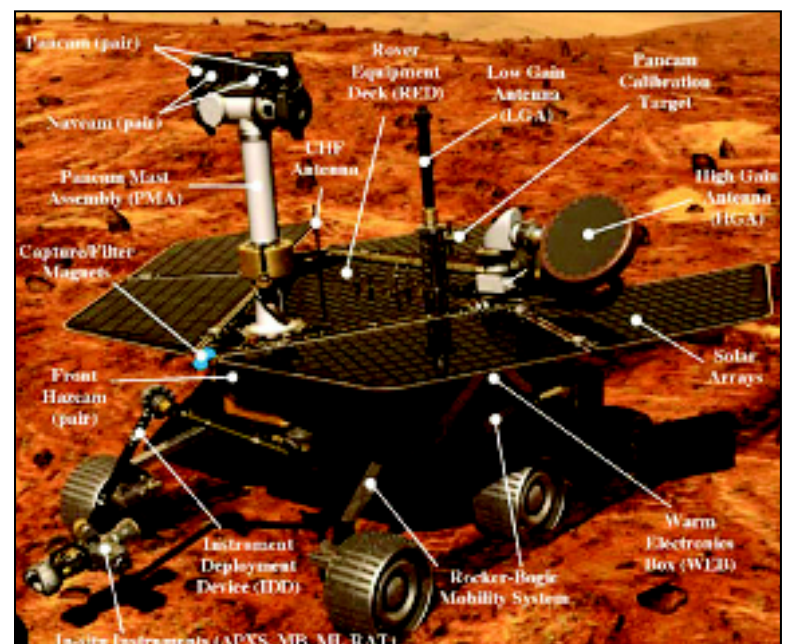
"Some of these materials wouldn't be out of place on a Formula One racecar," Foltyn said. "And the goal is similar: keeping temperatures within safe ranges in extreme conditions."

Radioisotope heater units made at Los Alamos maintain operating temperatures for instruments aboard the Galileo space probe and on the Cassini spacecraft and Huygens probe. Coupled with static electrical converter systems in a variety of radioisotope thermoelectric generators, plutonium-238 heat sources have helped provide electrical power for numerous other successful space instruments for more than three decades, including Apollo lunar surface scientific packages, several satellites and the Pioneer, Viking, Voyager, Galileo and Cassini space probes.

The heater units on the surface of Mars originally were fabricated at Technical Area 55 for NASA's Cassini mission, which is scheduled to arrive at Saturn in July. Support for NMT-9 salaries and operations comes from DOE's Office Of Space and Defense Power Systems, while NASA paid for fabrication of the heater units.

Details about the project are available in a 1996 technical report by Gary Rinehart, "Lightweight Radioisotope Heater Unit (LWRHU) Production for the Cassini Mission," LA-13143-MS, available at <http://lib-www.lanl.gov/cgi-bin/getfile?00318474.pdf> online. (Adobe Acrobat Reader required)

More information about the Spirit and Opportunity rovers is available at the NASA-Jet Propulsion Laboratory Web site at [http://marsrovers.jpl.nasa.gov/mission/spacecraft\\_surface\\_rover.html](http://marsrovers.jpl.nasa.gov/mission/spacecraft_surface_rover.html) online.



# Lab marks Black History Month with talk, exhibits

by Kathryn Ostic

In observance of Black History Month in February, the Laboratory will host a speaker and two exhibits about Black pioneers in the Southwest. The exhibits are on display simultaneously through March 1 in the second- and third-floor lobbies of the Otowi Building at Technical Area 3.

The talk and exhibit displays are open to all Laboratory badge holders.

Cortez Williams, president of C.W. Enterprises Inc., consulting firm, and professor emeritus after more than 23 years teaching on a full and part-time basis at the University of New Mexico, will speak from 10 to 11 a.m. Thursday in the Physics Building Auditorium at Technical Area 3.

Williams' topic is "Reconsidering The American West: Blacks in the West, 1100 to 1899." The exhibit is the same as the lecture title and will be displayed on the second floor of the Otowi Building.

More information about Williams' exhibit is on the African American Diversity Working group Web site at [www.lanl.gov/orgs/dvo/aadwg](http://www.lanl.gov/orgs/dvo/aadwg) online.

Williams has been a consultant for many governmental and educational institutions, such as public and private school systems, institutions of higher learning, businesses and divisions of continuing education. Williams will discuss the history of Africans in the west, documenting their exploration in the Southwest and Central America as early as 1100 AD.

Williams received his bachelor's degree from Virginia Commonwealth University in biochemistry and history; a master's degree from the University of Connecticut in Latin American history; and a doctorate of philosophy from UNM. He also is pursuing a second doctorate from UNM in American studies in business and public administration.

Williams will be available in the exhibit area at the Otowi Building to speak with Lab employees about his display from 1 to 2 p.m. on the day of his talk.

The talk will be simultaneously broadcast over LABNET Channel 9 and can be accessed via the Internet using Real Media and IPTV technology.

A exhibit, "African American Pioneers of the Southwest," also is on display on the third floor of the Otowi Building.

To view a description of the Charlie Morrissey Research Hall, part of the University of New Mexico's African American Studies program and photo from the exhibit, go to [www.unm.edu/~afamstds/hall.htm](http://www.unm.edu/~afamstds/hall.htm) online.



## NNSA to seek FY05 funding for Laboratory Perimeter Project

by Kevin Roark

Plans call for access controls, not road closures.

Based on the May 2003 Design Basis Threat (DBT) from the Department of Energy and on input from Los Alamos County community leaders and officials, the Laboratory and the National Nuclear Security Administration site office plan to seek funding for a revised Security Perimeter Project in fiscal year 2005.

The revised project, projected to cost approximately \$20 million, calls for additional vehicular-access-control infrastructure on Diamond Drive, on the Laboratory side of the Los Alamos Canyon bridge and at the old East Gate intersection of NM 4 and NM 501. The access-control facilities would not constitute a road closure, but rather would provide Laboratory security officials with the ability to counter the existing threat from vehicle bombs by adding access controls.

"As we understand the threat today, we certainly have no intention of permanently closing any more roads," said Dennis Martinez, deputy director of the Los Alamos Site Office. "Based on community input, we plan to ask for funding for a revised plan that is much more community-friendly and still meets the needs of the new DBT."

According to Safeguards and Security (S) Division, the plan to add access controls is not in response to any specific threat. "The purpose of this plan is to give us the ability to respond to a threat, should one arise," said Kevin Leifheit, deputy division leader for S-Division.

"We have high confidence that this plan gives us what we need in terms of security, while still meeting the needs of the community. It's probably the best compromise I've seen," he said.

The main Technical Area 3 access-control station would most likely be configured so that there would be five to six inbound lanes of traffic and three to four outbound lanes in order to achieve the required through-put necessary for handling the high volume times of day, said Leifheit. Large trucks or other delivery-type vehicles would have a separate checkpoint. The access-control station at West Gate would be smaller but still engineered to handle the anticipated traffic levels.

The plan also includes improving the now dirt road that connects West Road to Camp May Road, thus providing the community with direct access to the ski hill area without the need to pass through the Laboratory's access-control points.

"This plan still allows anyone to pass through the area," said Leifheit. "At SECON 3, guards at the checkpoints will make visual inspections and wave cars through as quickly as possible. At SECON 2, there may be some sort of positive identification check, though the details of that have not been worked out."

Access on Pajarito Road, now limited to badge holders only, will not change under the new plan.



## UC's National Security Panel meets at Los Alamos

Laboratory Director G. Peter Nanos, second from right, talks with Lawrence Livermore National Laboratory Director Michael Anastasio, right; Everet Beckner, deputy director for defense programs for the National Nuclear Security Administration; and Robert Foley, left, University of California vice president for laboratory management, at a meeting in the Administration Building at Technical Area 3. The three visitors were at the Laboratory for a UC National Security Panel meeting. Panel members heard presentations on a number of national security issues. The panel also heard reports on Laboratory contributions to nonproliferation, quantum information science and technology and plutonium science. Photo by LeRoy N. Sanchez



## Wu-Chun Feng named Asian American Engineer of the Year

**W**u-Chun Feng, leader of the Research and Development in Advanced Network Technology Team in the Computer and Computational Sciences (CCS) Division, has been named 2004 Asian American Engineer of the Year by the Chinese Institute of Engineers/USA. Feng was honored for his many recent research achievements. He will receive the award in Santa Clara, Calif., at a banquet to take place at the Marriott Hotel Great America on Feb. 28.

Feng, who is known for his innovations in supercomputing and high-speed networks, was a 2003 recipient of a prestigious R&D 100 award, given by R&D Magazine to the top 100 technology innovations of the year. That award recognized his work on the Linux-based supercomputer dubbed Green Destiny, an efficient, reliable 240-node supercomputing cluster that occupied a two-by-three-foot area, used about one-tenth the electrical power of comparable supercomputers and never failed during its lifetime. The "phone-booth" supercomputer is part of the Lab's Supercomputing in Small Spaces project, whose goal is to build more efficient supercomputers that consume less power and space, resulting in cheaper total cost of ownership.

He also helped lead a multi-disciplinary team of researchers from Los Alamos, the California Institute of Technology, CERN and the Stanford Linear Accelerator Center that last year smashed the Internet Land Speed Record by sustaining 2.38 billion bits a second over a distance of more than 6,200 miles between California and Switzerland, garnering a spot in the Guinness World Records Book. Feng made the new record possible through improvements to commodity 10-Gigabit Ethernet adapters.

Feng and his team at the Laboratory also re-engineered a crucial life-sciences research tool, transforming genome-sequencing software from an overnight batch process to an interactive one. The much-used BLAST code finds DNA or amino-acid sequences by searching huge databases and reporting the statistical significance of similarities between the query and the database. Feng's working implementation, mpiBLAST, reduces the search time of a 300-kilobyte query from nearly 24 hours to less than 8 minutes. In its first four months of deployment, researchers and pharmaceutical companies downloaded mpiBLAST more than 4,000 times.

"This is a tremendous honor, one that reflects upon the unwavering dedication and invaluable contributions of the talented engineers and scientists with whom I work, as well as the love, understanding and support of my family. I hope the recognition given to my work at Los Alamos by the Chinese Institute



of Engineers inspires young Asian-Americans to explore careers in computer science and engineering," Feng said.

Feng, who joined the Laboratory in 1998, holds a doctorate in computer science from the University of Illinois at Urbana-Champaign. He also is a fellow of the Los Alamos Computer Science Institute.

## Wallace named EES Division leader

**T**erry Wallace is the new Environmental and Earth Sciences (EES) Division leader. Joining the Laboratory in 2003 as the deputy division leader for EES, Wallace comes from an extensive background in earth sciences.

"We have many exciting and nationally relevant projects, and it is a wonderful experience to be involved with them," Wallace said. "I am thrilled to be working with an outstanding group of scientists who fit in with our national security mission," he added.

Wallace has elevated ambitions for EES. "Our goal is to become absolutely integrated

with new Laboratory goals, and I am confident we are poised to accomplish this," he commented.

Before coming to Los Alamos, Wallace was a professor of geosciences at the University of Arizona since 1983. Wallace also was a faculty member in the Applied Mathematics Graduate Program, curator of the University of Arizona Mineral Museum, and director of the Southern Arizona Seismic Observatory. "I am fortunate to come from a broad background that will assist the Lab's socially relevant mission," Wallace said.

Wallace grew up in Los Alamos and received a bachelor's degree in mathematics and geophysics from New Mexico Institute of Mining and Technology in Socorro, N.M., and a doctorate in seismology from the California Institute of Technology in Pasadena, Calif.



Terry Wallace

## EES Division employees celebrate the new year



Photos by Edwin Vigil

**E**arth and Environmental Sciences Division (EES-DO) employees took time out after hours recently to welcome in 2004 with some food, family and fun at the Bradbury Science Museum.

Ken Collins of the associate directorate for Strategic Research (ADSR), right, and Tony Montoya of EES-DO help themselves to several entrees from a New Mexican buffet. The event was an opportunity for EES employees to take some of their organization's morale funds and use them to celebrate the new year with co-workers and family.

Lauren Tencate, bottom photo, daughter of Jim Tencate of Geophysics (EES-11), checks out the life-size plaster figure of Gen. Leslie Groves, commander of the Manhattan Engineer District during the Lab's Manhattan Project.

In addition to food and fellowship there also was a screening of the movie "Finding Nemo" for the youngsters and the young at heart in the Bradbury Auditorium, as well as a chance at door prizes for all attendees.

Winners of prizes included Fraser Goff of Hydrology, Geochemistry and Geology (EES-6) and Rick Kelley of Environmental Geology and Spatial Analysis (EES-9), who both won movie baskets (sodas, candy bars, popcorn and a movie rental from Blockbuster Video). Claudia Aprea of EES-11, Ken Rehfeldt of Geotechnical Engineering Research (EES-7) and Everett Springer of Atmospheric, Climate and Environmental Dynamics (EES-2) all won \$10 gift certificates to Borders Books and Music and Craig Pearson and Tony Montoya, both of EES-DO, were winners of \$15 gift certificates to Tarpon's Steakhouse. Mike Fehler (EES-11) won a \$25 ExxonMobil prepaid gas card; Gary Geernaert of the Institute of Geophysics and Planetary Physics (EES-IGPP) garnered a \$15 gift certificate to Gordon's Music; Brent Newman (EES-2) won a Secundino Sandoval print donated by Debbie Pirkl (EES-DO); and David Reass (EES-2) won a checkers game. Rounding out the winners were Thom Rahn (EES-6), who won an electric kitchen knife donated by Lucia Sanchez (EES-DO);

Jim Tencate (EES-11), who took home a handmade quilt donated by Charryl Straub (EES-2); Yvette Manzanares-Valdez (EES-DO), winner of the Family-7-Mancala game; Bruce Robinson (EES-6), recipient of a \$50 gift certificate from BestBuy; and Lucia Sanchez (EES-DO), who took home a copy of the "Pirates of the Caribbean" video.

The event was organized by Jessica Faulkner (EES-DO), Yvette Manzanares-Valdez (EES-DO), Lucia Sanchez (EES-DO), Susan Burckle (EES-2) and Gloria Chavez (EES-6), along with the support of EES division leader Terry Wallace and deputy division leader Craig Pearson as well as John Rhoades of Public Affairs (CER-20) and his staff at the Bradbury Science Museum.



## February service anniversaries

### 35 years

Tom Moore, HSR-8

### 30 years

Gilbert Butler, N-1  
John Dragon, N-3  
John Gomez, P-25  
Manuel Lopez, FWO-MSE  
Gerald Martinez, RRES-ECO  
Russell Miller, TT  
Ricardo Ortiz, ESA-WMM  
Jo Ann Painter, ESA-WMM  
Michael Sedillo, C-PCS  
Carroll Thomas, HSR-8

### 25 years

Richard Boudrie, ESA-AET  
Mabel Grey-Vigil, X-2  
Raymond Juzaitis, ADWP  
Annabelle Lopez, NMT-11  
Dorothy Martinez, ADTR-TRO  
Kurt Moore, ISR-1  
Anthony Pasquariello, ESA-WDS  
Thomas Wangler, LANSCE-1  
Helena Whyte, HSR-5

### 20 years

Scott Apgar, CCN-4  
Martha Barnes, X-DO  
Nathan Bultman, SNS-DO  
William Carpenter, DX-5  
Michael Catanach, ESA-WDS  
Kay Coen, EES-DO  
Beth Dermer, CCN-2  
Kenneth Eggert, T-3  
Bennie Gonzales, SUP-1  
Seth Hinshaw, SUP-1

Robert Houlton, MST-8  
Kenneth Lagattuta, X-1  
Eric Larson, LANSCE-12  
Juanita Lujan, D-5  
David Montoya, ESA-ESA  
Johnna Montoya, SUP-5  
George Neuschaefer, LANSCE-1  
Charles Robertson, POL  
Marsha Roybal, DX-3  
Anthony Salazar, ISR-3  
Arthur Salgado, ESA-WOI  
Jill Trehwella, B-DO  
Mark Williams, DX-1

### 15 years

Tien Appert, ESA-WR  
Karla Atkins, CCS-5  
M. Gaye Barnes, HSR-8  
Julia Crespín, CFO-2  
David Devlin, MST-7  
Brian Hughes, HR-EP  
F. Jeffrey Martin, D-5  
Albert Naranjo, ESA-WDS  
Giridhar Raichur, CCN-5  
Barbara Rhodes, HR-S  
Gene Schroeder, D-3  
William Stanbro, N-4

### 10 years

Kane Fisher, NMT-15  
Catherine Hensley, CCN-18  
Dallas Hill, ESA-AET  
W. Kirk Hollis, C-ACT  
Lori Hutchins, ISEC  
David Loaiza, N-2  
Mikhail Shashkov, T-7  
Andrew Shreve, B-4

Lisa Townsend, C-AAC  
Earl Whitney, ADSR  
Kennard Wilson Jr., MST-7  
Barbara Wolf, CCN-18

### 5 years

Christopher Allen, SNS-04  
Billy Archer, X-2  
Jeffrey Archuleta, NMT-4  
Richard Averitt, MST-10  
Robert Baran, HSR-8  
Troy Belyeu, FWO-LANSCE  
D'Ann Bretzke, ADWEM-QAO  
Christopher Cdebaca, IM-5  
Christopher Fugard, ESA-ESA  
Caryn Gates, DX-5  
Richard Graham, CCS-1  
Deborah Guffee, FWO-IBS  
Jayashree Harikumar, ISR-3  
David Harkleroad, LANSCE-3  
Lloyd Herrera, NMT-5  
Urban Hill, DX-1  
Candace Holmes, ADO  
John Hopkins, RRES-ECR  
Edward Kwicklis, EES-6  
James Langenbrunner, X-2  
Donna Martinez, ESA-WOI  
Melissa Martinez, NMT-16  
Michael Martinez, NMT-5  
Rodney McCrady, LANSCE-6  
Coleen Meyer, IM-8  
Terry Priestley, PS-2  
Nelson Romero, CCN-2  
Kay Roybal, CER-30  
Thomas Stephens, ESA-WMM  
James Streit, FWO-FIRE  
Bart Vanden Plas, EES-9



## This month in history ...

### February

**1690** — Massachusetts takes what would later prove to be a crucial step in the establishment of a stable American economy and authorized the first official paper currency ever to be used in the Western Hemisphere.

**1789** — George Washington, the commander of the Continental Army during the Revolutionary War, is unanimously elected the first president of the United States by all 69 presidential electors who cast their votes.

**1898** — Travelers Insurance Co. sells the first auto insurance policy to Dr. Truman Martin of Buffalo, N.Y., who paid \$11.25 for \$5,000 worth of liability coverage.

**1924** — Woodrow Wilson, 28th president of the United States, dies Feb. 3 in Washington, D.C.

**1950** — Klaus Fuchs, who worked at Los Alamos during World War II, is arrested in Great Britain for passing top-secret information about "the bomb" to the Soviet Union. Fuchs' arrests leads authorities to several other individuals involved in the spy ring, including Julius and Ethel Rosenberg.

**1952** — The first "Don't Walk" sign is installed in New York City.

**1966** — The Soviet Union accomplishes the first controlled landing on the moon when the unmanned spacecraft, Lunik 9, touches down on the Ocean of Storms.

**1967** — J. Robert Oppenheimer, first director of the now Los Alamos National Laboratory, dies Feb. 18.

**1984** — While in orbit 170 miles above Earth, Navy Captain Bruce McCandless becomes the first human being to fly untethered in space when he exits the U.S. space shuttle Challenger and maneuvers freely, using a bulky, white rocket pack of his own design.

**1988** — Noble laureate (physics, 1965) and Manhattan Project pioneer at Los Alamos (1943-1945), Richard Feynman dies Feb. 15 in Los Angeles, Calif.

**1998** — President Bill Clinton visits the Lab and calls Los Alamos a place that forever changed the 20th century. He also says the Laboratory will play an even greater role in ensuring a stronger America in the next century because of its scientific expertise.

**2000** — Department of Energy Secretary Bill Richardson announces that the Laboratory has satisfied the requirements of the "special provisions" in the University of California-DOE management contract.

**2000** — The year 2000, with all its zeroes, not only meant possible problems with computers and systems, it also has an extra day, Feb. 29, because it is a leap year. Laboratory employees are asked to check computers and embedded systems to make sure computers recognize Feb. 29 and the correct day of the week. Employees are asked to also check computers and systems again following Feb. 29, to make sure systems read the correct date.

**And this from the Feb. 19, 1960, Los Alamos Scientific Laboratory "Bulletin":** "We have been informed that DMA has authorized the deletion of Category Sigma 15 from the Sigma Access Category List. DMA suggests that if visits concerning the Sherwood program should require access to classified information the category to be used now is Sigma 11, specifying access to the Sherwood program."

*The information in this column comes from several sources including the online History Channel, the Newsbulletin and its predecessors, the atomic archive.com, Echo Vitural Center, Science & Technology and Real History Archives.*

*Submissions are welcome. Please be sure to include the source.*

## In Memoriam

### Hugh Paxton

Laboratory retiree Hugh Paxton, 94, died Dec. 25, 2003, in Albuquerque.

A California native, Paxton moved to Los Alamos in 1948, where he joined the Laboratory as leader of the critical assemblies group. By the time he retired in 1976, Paxton was one of the world's foremost experts in criticality safety.

Paxton's influence on criticality safety continued following his retirement. In the late 1990s, along with Norm Pruvost, who worked with Paxton at Technical Area 18, Paxton edited the Nuclear Criticality Safety Guide, which is a bible of sorts for researchers who conduct experiments where near criticality is a concern.

Paxton earned a bachelor's degree in mathematics from the University of California, Los Angeles, and a doctorate in physics from the UC, Berkeley, studying under E.O. Lawrence.

### Hugh Byron Tucker

Laboratory retiree Hugh Byron Tucker died Dec. 29, 2003, following a lengthy illness. He was 92.

Tucker moved to Los Alamos in the 1940s to be part of the Manhattan Project. He began his Lab career as a Project Y first class machinist in 1945. Tucker worked in the former Shops Department (SD-DO) Office as a supervisor, retiring from the Lab in 1972.

Tucker was preceded in death by a former wife, Emma Sue Tucker.

Tucker is survived by his wife, Dorothy Tucker, of Sun City West, Ariz., and her daughter Judy Penman.

### Donald Ott

Retired Laboratory chemist Donald Ott, 78, died Dec. 24, 2003, after a long illness.

Ott's career at the Laboratory began in 1954 in the former Biomedical Research (H-4) group where he worked as an organic chemist studying new methods of radiation detection and counting using organic scintillators.

Ott retired from the Laboratory in 1987 after 33 years of conducting research in a variety of areas at the Lab such as the genesis of ICONs the world's first large-scale facility for the separation of stable isotopes of carbon, oxygen and nitrogen. Ott was a recognized expert in the synthesis of labeled compounds and their application.

Ott worked as a Lab associate staff member for seven years in the former Dynamic Testing Division (M-1), which later became Explosives Technology (DX-16). He left the Lab in 1994.

Ott was preceded in death by his daughter Pamela.

Ott is survived by his wife of 55 years, Mary Jane Ott, and his son, Kevin of Actinide, Catalysis and Separations Chemistry (C-SIC).



# Advice from Oppenheimer brought employee to Lab

by Chris Roybal

**R**uby Johnson of Laboratory Counsel (LC) began a 56-year relationship with Los Alamos National Laboratory at age 19. On June 10, 1946, Johnson gathered her belongings, obtained her government pass and, along with other new employees, traveled up "The Hill" to Los Alamos. "We'd come in a great big Army bus," Johnson remembered.

Once on the hill, Johnson embarked on a life of mud puddles, security checks and secrecy. This new life was a direct result of an acquaintance Johnson had with renowned scientist J. Robert Oppenheimer.

When not overseeing atomic research at Los Alamos, Oppenheimer enjoyed hiking in the Pecos wilderness. Occasionally, the physicist would visit Johnson (Vigil at the time) and her family at their general store and home in Cundiyo. "He was neat," Johnson said. "He wore his famous little hat." Johnson jokingly admits now that she wishes she had done something more than simply admire that famous little hat. "I wish I would have stolen [it]," Johnson jested.

Oppenheimer was the first person to suggest to Johnson that she work in Los Alamos. After graduating from Loretto Academy in Santa Fe, attending business college for one year in Oakland, Calif., and briefly working for the Farmers Administration in Santa Rosa and Tucumcari, N.M., Johnson took Oppenheimer's advice and traveled literally up the hill. Johnson's early days in Los Alamos consisted of living in dormitories, attending dances in theaters, eating lunches at Fuller Lodge and being isolated from the outer world. "We were pretty much cut off," Johnson admitted.

But being "stuck" in Los Alamos wasn't all that horrible to Johnson. "It was very friendly, like one family," Johnson stressed. That early Los Alamos family, excluding the scientists doing atomic research, knew virtually nothing about what was going on around them. "We were pretty well brainwashed," Johnson said. She, along with her fellow employees, was taught to never talk about her work in Los Alamos; a lesson that has stayed with Johnson to this day.

During her tenure in Los Alamos, Johnson has worked with the Manhattan Project, Atomic Energy Commission (AEC), Energy Research and Development Administration (ERDA) and Department of Energy (DOE). Before joining the Lab, Johnson's most enjoyable job was working in the Security Division under AEC. There she worked at the training school, keeping records, grading exams and inspecting firearms. The best part of her job, Johnson said, was meeting all the "handsome young men" who were just starting work at Los Alamos. Coincidentally, Johnson met her late husband, Allen, while he was working as a security courier in her building.

As a long-time "labee," Johnson advises her fellow employees to take pride in what they do, because their work always has consequences. And Johnson, who recently began her 57th year in Los Alamos, will continue to work, she said, as long as her supervisors will put up with her. "Do your work well, [because] it all comes back to you," Johnson said.



Ruby Johnson



Los Alamos  
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