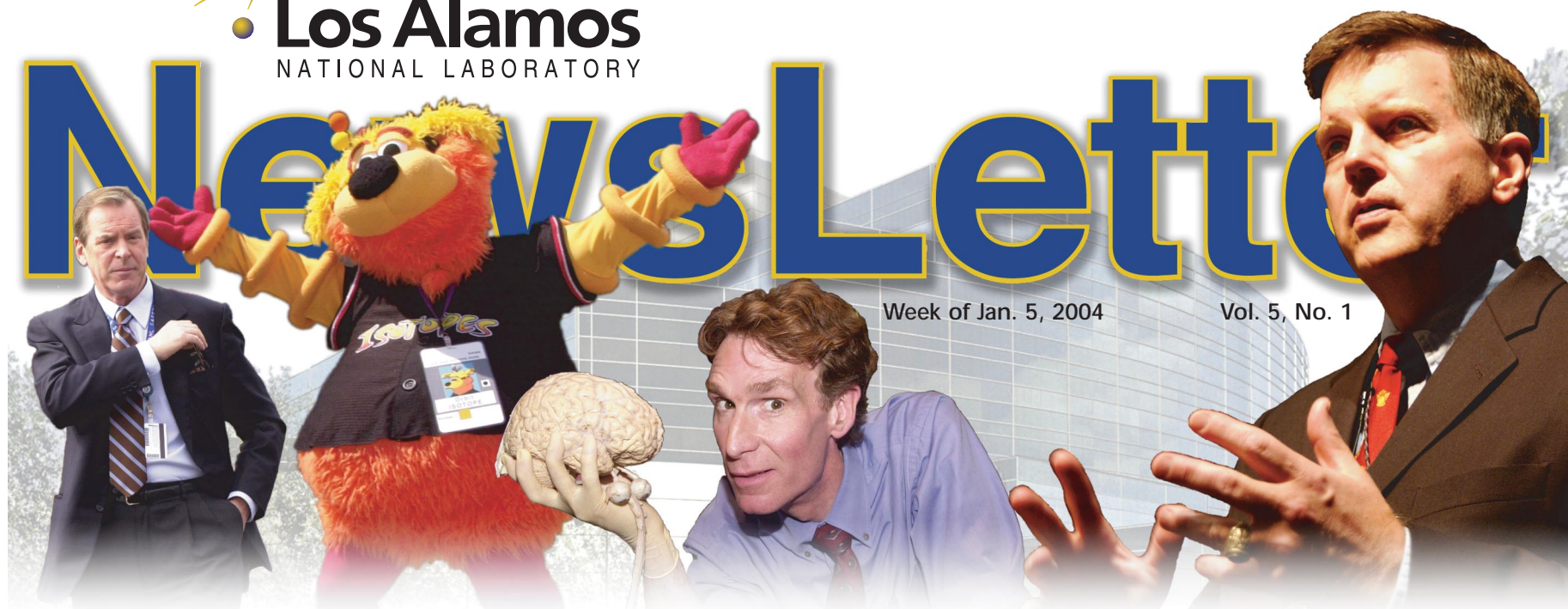


NewsLetter

Week of Jan. 5, 2004

Vol. 5, No. 1



2003: The year in review

“It was the best of times, it was the worst of times ...” 2003, like many a year before it, held both surprises and victories, gratification and soul searching. But it also held scientific and technological breakthroughs.

The Laboratory celebrated its 60th anniversary, not by resting on its laurels but by continuing to provide the nation the best in science and continuing to bring forward ideas that change the world.

To be sure the Lab, its work and people, swirled in the milieu of congressional hearings and testimony; political maneuvering; demonstrations; VIPs; audits; and, yes, honors.

In its 60th year, Los Alamos National Laboratory served the nation well. This issue attempts to summarize 2003 by recalling the technical and programmatic accomplishments, visitors, awards and honors that filled its days.

Operations

Nanos named director of Los Alamos National Lab

On Jan. 2, University of California President Richard Atkinson appointed retired Vice Admiral G. Peter Nanos as interim Laboratory director, replacing Director John Browne. Nanos formerly served as principal deputy associate director for Threat Reduction (ADTR). On July 16, the UC Regents appointed Nanos as the seventh permanent Laboratory director.

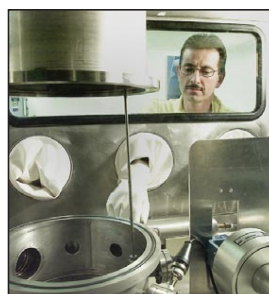


Laboratory Director
G. Peter Nanos

deputy director; and the appointment of G. Peter Nanos as interim Laboratory director. The allegations surrounding the dismissals of two Laboratory employees, Glenn Walp and Steven Doran, and changes in senior management in the Audits and Assessments Office, Security and Safeguards (S) Division and the Laboratory administrative and business operations areas also were addressed.

Lab restores U.S. ability to make nuclear weapons

The Laboratory successfully made the first nuclear weapons pit in 14 years meeting specifications for use in the U.S. stockpile after a six-year effort at Los Alamos' plutonium processing facility. A pit is the fissile core of a nuclear weapon's physics package. The newly made pit, called Qual-1 because it was built with fully qualified processes, is for the W88 warhead, which is carried on the Trident II D5 submarine-launched ballistic missile, a cornerstone of the U.S. nuclear deterrent.



Dennis J. Lujan of the Weapons Component Technology (NMT-5) Pit Assembly Team, working in a glove box, completes proof testing as part of the Laboratory's effort to build a fully qualified weapons plutonium pit.

auditorium and lecture hall and a 400-space parking garage. The 275,000-square-foot building will replace the Administration Building when completed in 2006.

Emergency Operations Center dedication

The Laboratory and Los Alamos County dedicated the new Emergency Operations Center at Technical Area 69 on Aug. 20. The new two-story multi-agency facility spans 38,000 square feet and has space for 120 people, including Los Alamos County, the neighboring pueblos, FEMA, the National Guard, State Police, the Red Cross, the Department of Energy and New Mexico Emergency Management. The new facility enables all the agencies to handle any emergency situation that arises.



Nonproliferation and International Security Center dedication

The NISC was dedicated April 22 and houses most of the arms control, treaty verification, nuclear safeguards and nonproliferation functions performed by Los Alamos' Nuclear Nonproliferation (N) and International, Space and Response Technologies (ISR) divisions, along with about 465 of its employees. The \$63 million, 163,375-square-foot secure facility is located in Technical Area 3 adjacent to the 267,000-square-foot Strategic Computing Complex.

New detonator manufacturing facility — A new detonator manufacturing facility at Technical Area 22 was dedicated May 28. The 4,500-square-foot High-Power Detonator Facility will have more floor space dedicated to manufacturing detonators for the stockpile,

continued on Page 3



Robert Dynes,
University of
California president

UC Regents name Dynes new UC president

Robert C. Dynes was named the new president of the University of California on June 11. He became the 18th president of the UC system replacing Richard Atkinson, who retired, on Oct. 2. Dynes was selected from a national pool of more than 300 candidates and is the former chancellor of the UC San Diego campus. Regents of the University of California made the selection.

DOE Inspector General report — The Department of Energy's Inspector General released a report on a special inquiry regarding operations at the Laboratory on Jan. 30. The report detailed results of the inquiry and recommended the resignations of John Browne, director; Joseph Salgado,



National Security Sciences Building ground breaking

The Laboratory dedicated the new National Security Sciences Building at Technical Area 3 on Aug. 20. The building will house 700 staff members and includes a 600-seat

For Your Safety

A healthy lifestyle

It's never too late to resolve to lead a healthful lifestyle. Whether you're making a new year's resolution or simply a promise to yourself, here are some tips to make achieving your resolutions a little bit easier.

- Make concrete resolutions for items that you can control, such as losing 15 pounds or taking a break three times each day for relaxation and to reduce stress.
- Don't be afraid to make resolutions that take a long time to accomplish such as reducing your cholesterol level.
- Break larger resolutions into small, easy-to-achieve steps. If you want to lose 30 pounds, break it down into smaller steps such as losing six pounds a month for five months.
- Surround yourself with people who will give you positive feedback on your progress to achieving your resolution.
- When making your list of resolutions, start with those that are easy to accomplish and then move to more difficult resolutions.
- Develop a written plan outlining the steps to accomplish your resolutions.
- Don't worry if you do not accomplish a resolution in the time you set. Just re-evaluate and continue to work toward accomplishing it on a new time line.



FROM THE TOP



Editor's note: Laboratory Director G. Peter Nanos reports on the retreat held for the Senior Executive Team and division leaders early in December. Nanos will have these retreats quarterly. The next is scheduled for March. The Institutional Planning and Evaluation Office led by Ping Lee is responsible for conducting these retreats for the director.

December 2003 Senior Executive Team and Division Leader Retreat communication

At the Dec. 1-3 retreat for the Senior Executive Team (SET) and division leaders, I closed the session with discussion about critical next steps for Laboratory leadership. They included

- focus on critical process improvements required to ensure safety and security,
- continue to work on baselining and balancing the weapons program,
- reduce the cost of doing business,
- leverage industrial partnerships to make critical performance improvements and
- complete and execute division business plans.

The three-day meeting began with an overview of University of California management changes and an explanation of goals for engagement with an industrial partner. The retreat focused on improving operational effectiveness and implementing change.

Breakout groups discussed implementation of partnering and progress made on the strategic goals. Specific presentations and general discussion focused on status and direction of performance priorities including integrated work control presented by Health, Safety and Radiation Protection (HSR) Division Leader Lee McAtee and Applied Chemical Technology (C-ACT) Group Leader Craig Taylor; business process improvements presented by Acting Chief Financial Officer (CFO) Division Leader Jay Johnson, Acting Supply Chain Management (SUP-DO) Division Leader John Bretzke and Acting Human Resources (HR) Division Leader Judy Ackerhalt; balancing the weapons program presented by Associate Director for Weapons Physics Ray Juzaitis and Associate Director for Weapons Engineering and Manufacturing Rich Mah; and the status of the Enterprise Project presented by Principle Deputy Director for Administration Carolyn Zerkle and Enterprise Project (EP) Leader George Hansrote.

Guest attendees included the new UC Vice President for Laboratory Management Bob Foley, the new UC Associate Vice President for Programs John Birely and the new Associate Vice President for Operations and Administration Bob Van Ness. During Foley's luncheon address, he stressed the importance of improving operations and business practices by supplementing LANL nuclear and high-hazard facility operations with operation and business expertise from industrial partners. He emphasized the continued importance of applying the unique talent and skills of the Laboratory's work force toward the national security mission.

Tom Lange, Procter and Gamble (P&G), gave a lively dinner presentation that highlighted how P&G uses modeling and simulation to help make the innovative process more efficient. Only about 25 percent of P&G's managers' time is spent on business processes, freeing up the other 75 percent for innovation and creativity. He discussed the inevitability and necessity of change in organizations with continued longevity.

At the conclusion of the retreat, division leaders and SET members said they had a much better understanding of UC efforts to strengthen management and operations at the national laboratories. In addition, several division leaders said their perspective on issues that crosscut the entire Laboratory was much clearer by hearing from and interacting with leaders from organizations they might not encounter on a regular basis. Many SET and division leaders and I, as well, expressed a desire to prioritize the elements of the strategic goals and clearly identify the crucial milestones and accomplishments for the next calendar year. The Institutional Planning and Evaluation (IPE) Office will be working with the SET and division leaders to complete this unfinished business.

A message from Vice President Foley to all employees

As you are aware, recent enacted law has called for the contracts for managing Los Alamos National Laboratory, Lawrence Berkeley National Laboratory and Lawrence Livermore National Laboratory to be competed when their existing contracts expire. Specifics regarding the competition and the time line are yet to be determined, but we do know that they will be competed. The University is focused on strong and effective management of the laboratories, and we are preparing as if we will compete. The UC Board of Regents will make the final decision on competition based on an assessment of the terms and conditions of the competition.

In the coming months there will be news articles, statements and speculations from many different sources about various possibilities, assumptions and strategies associated with UC's management of the laboratories and the impending competition. During this time, the university will work to ensure that you are kept informed regarding management and competition issues. We will continue to disseminate the University of California's LAB UPDATE and will incorporate information about competition activities when appropriate. In addition, we will continue to provide information to the public affairs offices at each laboratory and to the larger university community via the university's Web site.

I would be remiss to send a message at this time without reminding you of the responsibility that each of us has for laboratory security, particularly at the weapons labs. The university considers safety and security as top priorities, and I have directed each laboratory, as appropriate, to ensure that proper policies and procedures are in place to ensure the safe operations and secure handling of information and materials, as well as the security of the facilities. Our nation has placed a great trust in all of us to safely and securely do our job and as the laboratories' manager, on behalf of the Department of Energy and the National Nuclear Security Administration, we expect no less than your full and utmost attention to and compliance with all safety and security procedures. Anything less, of course, is unacceptable to us all.

As I have previously said, I ask that you remain focused on your mission and your responsibilities at the laboratory. The University of California is very proud of the work of the national laboratories and the ongoing contributions that you are making to the scientific and technological advances that continue to keep our nation at the forefront. The work the labs are doing in the areas of homeland security and in maintaining the safety, security and reliability of our nation's nuclear stockpile, among many other areas, is invaluable to our country's national security.



Laboratory Director
G. Peter Nanos

Los Alamos NewsLetter

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Los Alamos National Laboratory is operated by the University of California for the National Nuclear Security Administration (NNSA) of the U.S. Department of Energy and works in partnership with NNSA's Sandia and Lawrence Livermore national laboratories to support NNSA in its mission.

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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The year in review

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which is key to maintaining required quality. The new production facility, scheduled for completion in early 2004, also will provide needed upgrades and additional space for storage and shipping and handling.

DOE approves CMR replacement project — The proposed Chemistry and Metallurgy Research replacement project will be much smaller — 250,000 square feet less than the current Chemistry Metallurgy Research facility that spans a half-million square feet. The main focus of the facility's design is to ensure that Los Alamos can meet and grow with the requirements of its major client, National Nuclear Security Administration Defense Programs — specifically pit production and enhanced surveillance activities.



Omega West reactor decommissioned — The Omega West reactor decommissioning and demolition project finished ahead of schedule and under budget. Formerly located at Technical Area 2 in Los Alamos Canyon, the main focus of the work was to eliminate the potential spreading of radioactive contamination possible from flooding and to restore the area to its natural environmental state. A commemoration ceremony was held on July 15 to pay tribute to the old facility.

New Decision Applications (D) Division building — The Department of Energy and Lab officials dedicated the \$4.8 million, 25,000-square-foot, two-story facility at Technical Area 3 in November to accomplish infrastructure revitalization at the Laboratory.

New Occupational Medicine (HSR-2) building — The new \$3.8 million, 20,000-square-foot facility is located at Technical Area 3 and was dedicated in December. The facility is located off Pajarito Road, south of its current location.



Director's Development Program preps future leaders — The Laboratory's new Director's Development Program was implemented in July. The focus of the program is to prepare current leaders for the transition to the next leadership level, instead of promoting them and hoping they will grow into the position. The program is based on six leadership competencies: leading change, leading people, driving results, demonstrating business acumen, building coalitions and communications and achieving operational

achieving operational

excellence, which reflect the Lab's institutional values and support for mission-specific business results.

UC Regents approve board to oversee national security Labs — University of California Regents approved the creation of a National Security Laboratories Board of Directors in November. The board's broad powers include oversight of the weapons laboratories and reports to the regents through UC President Robert Dynes.

New site-support-services subcontractor begins operations — KSL Services Joint Venture took over the contract from Johnson Controls Northern New Mexico in February.



KSL Services Joint Venture was awarded a five-year contract with an option for an additional five years. Services provided under the contract include facilities maintenance and repair, utility operations, waste removal, roads and grounds maintenance and custodial services.

Laboratory Director G. Peter Nanos addresses Senior Executive Team and division leaders at retreat — The opening retreat began a series of quarterly meetings that will help prepare the Laboratory for the upcoming competition of the operating contract. The first retreat was held in September followed by one in December. The next retreat is scheduled for March 2004.



United Healthcare new medical plan provider in 2004 — United Healthcare will administer the "Health Maintenance Organization" and "Preferred Provider Organization" medical plans, as well as a new, "Consumer-Driven Health Plan," for Lab employees, retirees and their covered family members. United Healthcare was selected through a competitive-bid process that was initiated jointly by the University of California Office of the President and the Laboratory. The new health-care-provider plan became effective Jan. 1, 2004.

Weapons X-ray facility completed — The Laboratory completed construction of the second stage of the world's most powerful flash X-ray machine, a key experimental tool needed to study how aging nuclear weapons behave in the absence of nuclear testing. Laboratory management and federal representatives formally dedicated the Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility as part of the Laboratory's 60th anniversary celebrations on April 22.



Waste shipment heads to WIPP — The first shipment of radioactive, sealed sources was transported to the Waste Isolation Pilot Plant from Technical Area 54 in May.

Lab delivers first accelerator for neutron source project — A multilab effort to build the world's most powerful source of neutrons took a giant step forward in September. The accelerator technology was designed and built by the Laboratory, and on their first try, researchers at the Spallation Neutron Source in

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Restructures

Business Operations (BUS) Division — The Laboratory undertook a focused effort to ensure Labwide improvement in its business processes by soliciting consulting expertise from private-sector firms to initiate an independent evaluation of the Laboratory's key financial processes to determine business and control effectiveness. The effort included senior management changes and a reorganization of the former Business Operations (BUS) Division, which became the Supply Chain Management (SUP) and Chief Financial Officer (CFO) divisions.

Decisions Applications (D) Division — Decision Applications (D) Division reorganized as a result of strategic planning aimed at clarifying its science and

technology mission and strategic alignment. Three new thrust leaders for each major component (nuclear weapons, homeland security, energy and environment) also were chosen. The changes assisted D Division in focusing its efforts on scientific decision support for national security in the Lab's major programmatic areas.

Dynamic Experimentation (DX) Division — Dynamic Experimentation (DX) Division reorganized to foster excellence in science and engineering; strengthen the foundation of operations; align resources to be more effective and focused; raise and broaden technical, operational, programmatic and personnel leadership levels; and help to leverage resources for science. DX Division's

principal activities are research, development and testing in support of nuclear weapons and Department of Defense (DoD) programs. DX Division also is involved in environmental monitoring and remediation research, industrial collaborations, and technology transfer.

Nuclear Nonproliferation (N) Division and International, Space and Response Technologies (ISR) Division — Nonproliferation and International Security (NIS) Division became the International, Space and Response Technologies (ISR) Division and the Nuclear Nonproliferation (N) Division. Both ISR and N divisions are part of the Laboratory's Threat Reduction Directorate (ADTR).

The year in review

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Oak Ridge, Tenn., successfully ran an ion beam through the first of 10 accelerator tanks from Los Alamos. The achievement clears the way for Los Alamos to continue building five more of the drift-tube linear accelerator tanks, or DTLs, as well as four coupled-cavity linacs that will further accelerate the SNS beam.

W2W **Wall-to-Wall Inventory** — The Laboratory began a wall-to-wall inventory of controlled personal property in January. The baseline inventory included 80,000 items and an acquisition value of about \$1 billion. The physical inventory took about four months to complete, and the Lab reported its findings to the University of California and the Department of Energy/National Nuclear Security Administration.

Technical/Programmatic



Immediate predecessor of modern humans found — An international team of scientists, including a researcher from the Laboratory, discovered fossilized skulls that lend further credence to the hypothesis that modern humankind originated in the Afar Region of northeastern Ethiopia. Researchers named the new subspecies *Homo sapiens idaltu* (*idaltu* means “elder” in the Afar language).

Human genes may predict AIDS progression rate — Laboratory researchers found that people with less common types of proteins on their white blood cells seem to mount a better immune response against the Human Immunodeficiency Virus — the virus that causes AIDS — and tend to fight progression of the disease better than people with common white-blood-cell proteins.

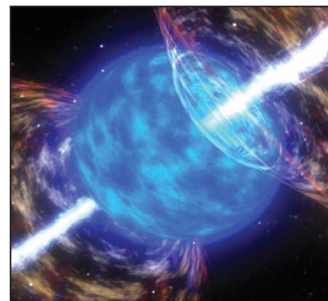
Laboratory launched Hepatitis C database — Lab scientists launched an Internet-based Hepatitis C Virus (HCV) genomic sequence database similar to the Lab’s Human Immunodeficiency Virus (HIV) database.

Lab scientist quantifies meteor false-alarm rate for nuclear test monitoring

A Los Alamos researcher is helping to provide an extra measure of confidence in an international array of listening posts that keep an ear out for clandestine nuclear weapons tests. By using calculations, the researcher showed that a number of false alarms in these stations could be attributed to meteors. The stations are part of an international monitoring system that is used to detect, among other things, rogue atomic tests.



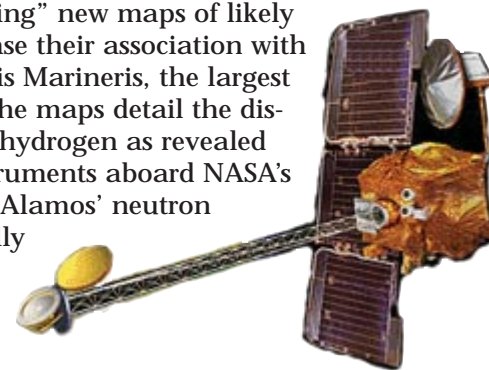
Detectors such as this infrasound array operated by the Laboratory have helped detect meteors and missiles.



Cosmic explosions may propel fastest objects in universe

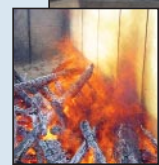
Laboratory researchers and their colleagues reported that the most powerful explosions in the universe, gamma-ray bursts, may generate the most energetic particles in the universe, known as ultrahigh-energy cosmic rays (UHECRs), according to a new analysis of observations from NASA’s Compton Gamma-Ray Observatory.

Ice on Mars — “Breathtaking” new maps of likely sites of water on Mars showcase their association with geologic features such as Vallis Marineris, the largest canyon in the solar system. The maps detail the distribution of water-equivalent hydrogen as revealed by Laboratory-developed instruments aboard NASA’s Mars Odyssey spacecraft. Los Alamos’ neutron spectrometer has been carefully mapping the hydrogen content of the planet’s surface by measuring changes in neutrons given off by soil, an indicator of hydrogen likely in the form of water-ice.



New high-purity plutonium sources produced at Lab — New high-purity plutonium sources for use as primary analytical chemistry standards were produced at the Laboratory using a new extrusion method developed at the Laboratory. Plutonium sources used as standards in analytical chemistry must be of extreme purity, 99.99 percent pure, free of contaminants and surface oxidation. The plutonium sources had to be made in an oxygen-free environment, at less than 10 parts per million, and sealed under vacuum in glass ampules to ensure their utility as primary standards.

Stops, visits and highlights



Russian visitors learn about Lab’s fire-mitigation efforts

A group of visitors from Russia were shown how Air Curtain Destructors are being used at Technical Area 16 to dispose of wood and slash generated from Laboratory fire-mitigation efforts in January.



Out and about Peter Jennings visit — ABC World News Tonight anchor Peter Jennings learned in February about the Lab’s role in stockpile stewardship, including nonproliferation.



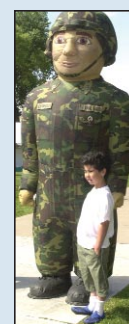
UC Regents visit Lab — Several UC Regents visited the Laboratory in June to hear reports on Laboratory research and programs.

Brooks visits/takes oath — Linton Brooks was named permanent administrator of the National Nuclear Security Administration in May replacing former NNSA



Administrator Gen. John Gordon. Brooks visited the Laboratory on several occasions during 2003 to meet with senior officials.

Lab’s Safety and Security Day a success — The fifth annual “Community Safety and Security Day,” was at Ashley Pond in June and featured more than 100 agencies representing five Northern New Mexico counties.



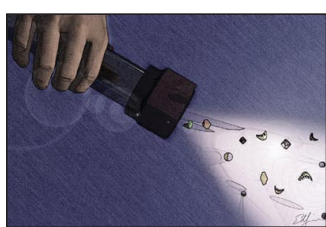
Lab day at Isotope Park — Laboratory Director G. Peter Nanos throws the ceremonial first pitch for the Albuquerque Isotopes at the start of the regular-season closer in September. Laboratory workers purchased more than 2,000 tickets for the game.

The year in review



Airborne-sensor technology assists emergency responders — Scientists at the Laboratory and emergency first-responders from the Environmental Protection Agency developed airborne infrared-sensor technology that can aid emergency crews by detecting and mapping hazardous and toxic chemical plumes unleashed by disaster or terrorist acts. The Airborne Spectral Photometric Collection Technology, known as ASPECT, is a high-tech sensor package onboard a small aircraft operated by the EPA that allows for timely surveillance of gaseous chemical releases from a safe distance.

Defense transformations — Defense Transformation offers an interesting window for science and technology developers across the Laboratory to see their ideas applied to problems for sponsors with whom they may not have worked in the past. What Defense Transformation means for Laboratory staff is a shift within the Department of Defense toward a more nimble, rapidly deployed force with a more high-tech approach.



Building a "nanoscale" flashlight — Laboratory scientists constructed a novel device for "seeing" tiny metal nanoscale particles by combining subwavelength, near-field imaging with broadband interference spectroscopy that uses the high-intensity illumination produced by an ultrafast laser — a laser that emits pulse durations lasting only a few quadrillionths of a second. The new capability may provide a powerful new tool for "real-time" studies of electronic dynamics at the nanoscale level with high resolutions in both time and spatial domains.

Scientists explore the complex nature of superconductivity — Los Alamos researchers discovered evidence to support leading theories about the underlying mechanism of high-temperature superconductivity. Research results describe how sharp changes in the Hall Effect on studies of a high-temperature superconductor made from bismuth, strontium, lanthanum, copper and oxygen show signs of a phase transition consistent with the current belief in the scientific community that this could be the cause of superconductivity. A phase transition is a sudden change in the physical properties of the material. In the case of this experiment, it is not clear what exactly the phase transition was, but its discovery and further study could lead to a better understanding of superconductivity.

Lab part of team establishing procedures for bioforensics — A Los Alamos member of the Scientific Working Group on Microbial

Genetics and Forensics team helped to develop the quality assurance guidelines labs use for conducting microbial forensics casework. The new quality assurance guidelines in bioforensics are based on the same standards used for human forensic DNA typing and other clinical laboratory standards.

Awards and Honors



From left to right: Greg Canavan, Hans Frauenfelder and Geoffrey West

Senior Fellows — Three long-time Laboratory researchers, Greg Canavan of the Physics (P) Division, Hans Frauenfelder of the Center for Nonlinear Studies (T-CNLS) and Geoffrey West of Elementary Particles and Field Theory, were named Senior Laboratory Fellows. The honor is given to technical staff members who sustain a high level of excellence in programs important to the Lab's mission, make important scientific discoveries that lead to widespread use or are recognized as leaders in their fields both within and outside the Lab.

More join ranks of Laboratory Fellows — Carol Burns of the Chemistry (C) Division; R. Brian Dyer of the Bioscience (B) Division; Robert Hixson of the Dynamic Experimentation (DX) Division; Quanxi Jia of the Superconductivity Technology Center (MST-STC); Nicholas King of the Physics (P) Division; and Michael Nieto and Arthur Voter, both from the Theoretical (T) Division, were named Laboratory Fellows. The honor is given to technical staff members who sustain a high level of excellence in programs important to the Laboratory's mission, make important scientific discoveries that lead to widespread use or are recognized as leaders in their fields both within and outside the Laboratory.



Back row left to right, Carol Burns, Nicholas King, Arthur Voter and R. Brian Dyer; in front, from left, Robert Hixson, Quanxi Jia and Michael Nieto

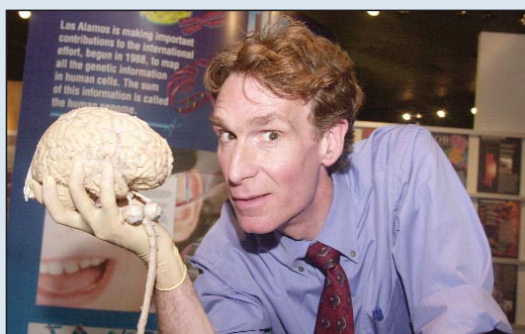
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Stops, visits and highlights ...



Colorado senator tours Lab facilities — U.S. Sen. Wayne Allard, R-Colo., toured Laboratory facilities and received briefings on Lab threat reduction, cyber security and modeling and simulation programs in April.

Bill Nye visit — Bill Nye, "the Science Guy," is developing a new Public Broadcasting System program for adults and while at Los Alamos in June learned about Lab programs and technologies.



Family Festival — Thousands of employees, retirees and their families and friends stopped by Los Alamos High School's Sullivan Field for a day of food, fun and frolicking at the first Lab Family Festival held in July.

State agency launches new commuter bus service Park and Ride — The new commuter bus service began in May with the purchase of six, 57-passenger buses and six, 33-passenger buses for service between Santa Fe, Los Alamos and Española, and later, Albuquerque.

Mexico's President Fox hears about collaborations with Lab — In November Mexico's President Vicente Fox learned about Laboratory collaborations with agencies and institutions in Mexico, including the Mexican Petroleum Institute, the National Institute for Nuclear Research and National Autonomous University.

Other



Physicist Edward Teller dies — Noted physicist and Manhattan Project Era scientist Edward Teller died Sept. 9 at his home in Palo Alto, Calif. He was 95. Teller, who came to Los Alamos in the 1940s during the crash program to develop the world's first atomic bomb, had suffered a stroke. Teller was awarded the Presidential Medal of Freedom, the nation's highest civilian honor, by President George W. Bush in August during a special ceremony. Teller also was the driving force, with E.O. Lawrence, behind the creation of Lawrence Livermore National Laboratory in California, where he was its director from 1958 to 1960.



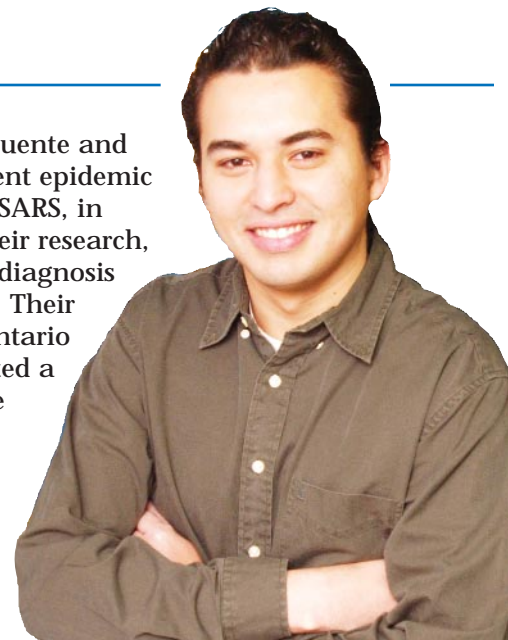
Los Alamos student honored for SARS epidemic research

Mexican President Vicente Fox recently presented Mexico's most prestigious youth award to a graduate student in the Laboratory's Theoretical (T) Division for his studies of SARS and other epidemics.

Gerardo Chowell-Puente traveled to the presidential residence Los Pinos in Mexico City to claim one of the National Prizes for Youth awarded by the Mexican Institute of Youth or Instituto Mexicano de la Juventud. The prize recognizes Chowell-Puente's cumulative academic activities, including research, publications, invited talks, awards and community service. Fox gave him a signed diploma, a gold medal and 110,000 Mexican pesos (more than \$9,800).

Using mathematical models, Chowell-Puente and his Los Alamos colleagues studied the recent epidemic of Severe Acute Respiratory Syndrome, or SARS, in Ontario, Hong Kong and Singapore. In their research, they estimated the levels of isolation and diagnosis rates needed to control outbreaks of SARS. Their models validated rapid intervention by Ontario public health officials in March that averted a catastrophic epidemic. Their findings were published recently in the *Journal of Theoretical Biology*.

In addition, Chowell-Puente has worked with his doctoral adviser, **Carlos Castillo-Chavez**, in the field of homeland security, defining worst-case scenarios for the deliberate release of

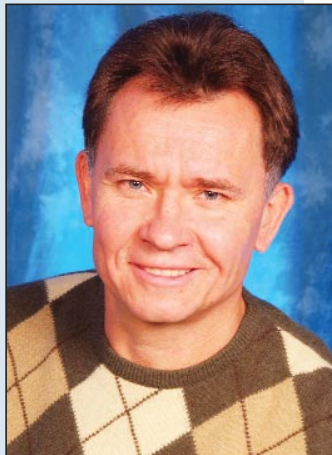


Gerardo Chowell-Puente

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Alexander Balatsky



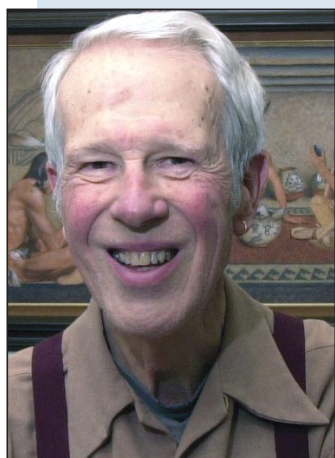
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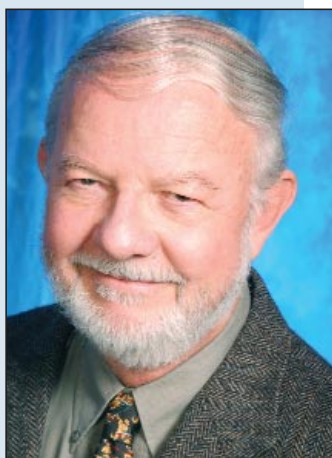
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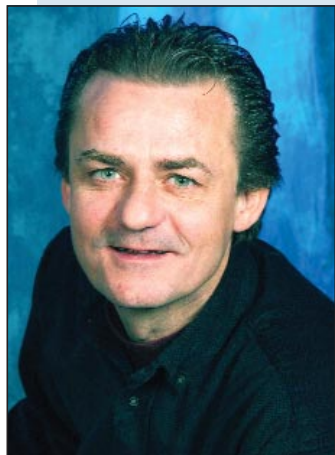
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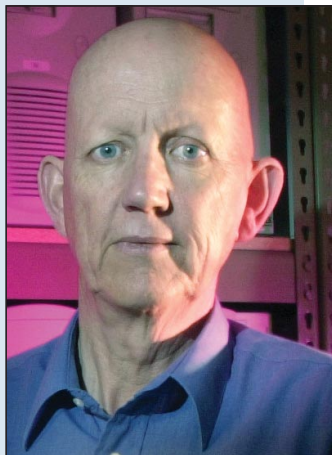
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David Madland



Andrew Hime



Peter Moller

Eight physicists honored as Fellows of the American Physical Society

Eight Los Alamos researchers have been elected fellows of the American Physical Society, recognized by other physicists for their outstanding contributions to physics.

The eight Los Alamos physicists, the groups in which they work, the APS divisions or topical groups from which they were nominated and their specific citations are as follows:

- **Alexander Balatsky** of Condensed Matter and Statistical Physics (T-11), Condensed Matter — "For insightful theory of strongly correlated states of matter, particularly unconventional superconductivity and the prediction of impurity-induced quasiparticle bound states."
- **Gary Doolen** of Complex Systems (T-13), Computational Physics — "For frontier computational research in fluid dynamics modeling, one-component plasmas, complex-rotation methods for atomic resonances and laser-plasma interactions."
- **Francis Harlow** of Fluid Dynamics (T-3), Fluid Dynamics — "For his contributions to our understanding of low-speed, free-surface and turbulent flow through computational modeling, and his invention of completely original methods to address these issues."
- **Andrew Hime** of Neutron Science and Technology (P-23), Nuclear Physics — "For his many scientific contributions to neutrino physics with the Sudbury Neutrino Observatory that resulted in the demonstration that neutrinos from the sun undergo flavor transformation."
- **Victor Klimov** of Physical Chemistry and Applied Spectroscopy (P-CPS), Forum on Industrial and Applied Physics — "For pioneering studies of ultrafast dynamical processes in nanocrystal quantum dots, development of fundamental principles for light amplification in NQDs and the first demonstration of NQD lasing."
- **William Louis** of Subatomic Physics (P-25), Nuclear Physics — "For his significant contributions to neutrino physics through the invention and application of the technique of weakly scintillating mineral-oil detectors."
- **David Madland** of Nuclear Physics (T-16), Nuclear Physics — "For his pioneering work on relativistic mean-field theories of nuclei using point couplings, for relating the couplings to Quantum Chromodynamics scaling and for substantial contributions to other areas of nuclear theory."
- **Peter Moller** of T-16, Nuclear Physics — "For his contributions in the areas of nuclear fission, nuclear masses, nuclear beta decay, data for astrophysical applications and superheavy element stability and formation."

With the new additions, Los Alamos' Theoretical (T) Division currently boasts 38 APS Fellows. The Physics (P) Division has 29 of its staff among the ranks of APS Fellows.

"Election as a fellow in the American Physical Society by one's fellow physicists is one of the highest honors in the field," said Allen Hartford, leader of Science and Technology Base (STB) Programs. "For Los Alamos to have eight of its staff elected in one year speaks volumes about the sustained quality of our research. We're really proud of these individuals."

No more than one in 200 APS members become fellows. A total of 215 fellows were elected for 2003.

The APS Fellowship Program was created to recognize members who have made advances in knowledge through original research and publication or made significant innovative contributions in the application of physics to science and technology. They also may have made significant contributions to the teaching of physics or they may serve and participate in APS activities.

The new APS fellows will receive certificates at the annual meeting of the division that sponsored their nominations. Those citations will specify the achievements for which they were nominated.



December employee service anniversaries

35 years

Leo Rivera, CCN-18

30 years

Malcolm Fowler, C-INC
Ignacio Medina, ISR-4

25 years

Alan Bishop, T-DO
Edward Caramana, CCS-2
Priscilla Davis, NMT-7
Joseph Fasel III, D-2
Rosenda Gallardo, ESA-GTS
Britton Girard, X-4
Kent Hansen, CCN-4
Robert Hoffman, CCN-5
Judith Ireland, SUP-2
Harry McGavran, CCN-8
Daris Millegan, CCN-4
Susan Mniszewski, CCS-3
Gene Montoya, RRES-DO
Roy Przeklasa, SNS-02
Lawrence Quintana, PS-1
Joseph Rieken, X-4
Robby Russell, X-8
Joseph Schwaegel, DX-6

J. Maxine Torres, CCN-2
Dolores Trujillo, NMT-4
Henrietta Trujillo, CFO-1
Gloria Vigil, CFO-1

20 years

Ann Barker-Wohletz, CCN-2
Susan Bergauer, HR-D-WP
Diana Brehm, ESA-WMM
James Chavez, CCN-5
Nancy Fullerton, SUP-3
Douglas Hemphill, ESA-WMM
Michael Kaufman, NMT-4
Patrick Lara, LANSCE-12
Jose Manzaneros, CCN-5
Nathan Okamoto, P-24
Susie Orr, S-6
Darryl Sandoval, CCN-5
Richard Ulibarri, CER-1
Dole Vonda, NMT-2

15 years

Lawrence Bronisz, MST-STC
Robert Catherwood, ESA-WSE
B. Marie Fernandez, ESA-DO
Vincent Fischer, CCN-4
Julie Gallegos, MST-NHMFL

Naedin Gallegos, FWO-SWO
Rowena Gibson, B-1
Tommy Martinez, NMT-7
M. Jo Ann Salazar, C-AAC
Kurt Sickafus, MST-8
Lavern Wiig, ISR-4

10 years

Gennady Berman, T-13
David Bradbury, RRES-ECO
Wendel Brown, NMT-15
Justin Doak, N-4
Gretchen Ellis, ESA-DE
Jeffrey Huling, NMT-9
Crystal Johnson, SUP-2
Taylora Koch, NMT-3
Cynthia Martin, NMT-3
Mary Neu, C-SIC
Brenda Newton, CFO-1
Phillip Noll Jr., RRES-ECR
Thomas Sewell, T-14
Laura Smilowitz, C-PCS
William Wood, P-22
David Zerkle, D-5

5 years

Richard Alexander, STB-EPO

Rainer Bleck, EES-2
Rick Collinsworth, P-22
Brent Faulkner, ESA-AET
Todd Hanson, CER-20
David Swavely, CFO-2
Cheryl Gomez, CIO-PO
Craig Kelley, IM-3
Jason Kritter, IM-8
Bernabe Lucero, PM-DS
Patrick McCurdy, FWO-DX-ESA
Arminda Mendez, STB-EPO
Thomas McNaughton, NMT-10
Paul Newberry, FWO-SWO
Santiago Parra, D-3
William Robertson, IM-2
Kenneth Schiffer Jr., ISEC
Gerald Schobert, ESA-TSE
Marcus Sena, FWO-DECS
Annette Serna, ISEC
Francis Vigil, CCN-4
Ginger Villareal, NMT-DO
Jon Weisheit, T-6
Jeffrey Wheat, C-ACT
David Williams, NMT-DO
Barbara Winters, SUP-DO
Deidre Witherell, FWO-DECS

Los Alamos student ...

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biological agents. He is co-author of a chapter in the book "Bioterrorism: Mathematical Approaches for Homeland Security," edited by Tom Banks and Castillo-Chavez, which was scheduled for publication last month.

A third-year doctoral student at Cornell University in the Biological Statistics and Computational Biology Department, Chowell-Puente came to the Lab in the summer of 2002 as a graduate research assistant working with James (Mac) Hyman in Mathematical Modeling and Analysis. This month, he begins a year-long term in Los Alamos' Center for Nonlinear Studies (T-CNLS).

"My experiences at Los Alamos made it possible for me to attain this high honor," Chowell-Puente said. "I hope to merit the recognition of my countrymen through further research that benefits the health of

Mexico and the battle against emerging and re-emerging infectious diseases worldwide."

Chowell-Puente is co-author of "Scaling Laws for the Movement of People between Locations in a Large City," in press for the journal *Physical Review E*, along with five other technical reports.

Castillo-Chavez, who is the 2003 Ulam Scholar in the Center for Nonlinear Studies, began his collaboration with Chowell-Puente when the latter was a junior at the Universidad de Colima, Mexico, where he earned his bachelor's degree in computer science and telecommunications.

"His creativity, discipline, enthusiasm and dedication have been a source of inspiration to his fellow students as well as to me," said Castillo-Chavez. "His interactions at Los Alamos, particularly those with **Mac Hyman** and **Paul Fenimore** in the Center for Nonlinear Studies, have allowed him to expand his horizons, his tool kit and his imagination."

Castillo-Chavez said he nominated Chowell-Puente for the National Prize last year in recognition of his research on

population dynamics and scaling laws for the social mobility network in Portland, Ore., as part of the Laboratory's TRANSIMS program. Chowell-Puente collaborated with Hyman, Castillo-Chavez and **Stephen Eubank** of Basic and Applied Simulation Science (CCS-5) on that research.

Chowell-Puente was born in Leon Guanajuato, Mexico, and lived most of his life in the city of Colima.

He is a participant in the Mathematical and Theoretical Biology Institute, currently located at CNLS, which provides undergraduate and graduate students research experiences at the interface of mathematics, statistics and the social and natural sciences, especially the application of mathematics to biology. Participants in MTBI have published 72 technical reports, won multiple awards from the American Mathematical Society, the Mathematical Association of America and the Society for the Advancement of Chicanos and Native Americans in the Sciences. Castillo-Chavez, who heads the Institute, said MTBI currently hosts about 30 participants, 20 of whom are undergraduates.

In Memoriam

Anthony and Margaret Sanchez

Laboratory employees Margaret Sanchez of Advanced Nuclear Technology (N-2), her husband, Anthony J. Sanchez of Analytical Chemistry Sciences (C-ACS) and their 20-year-old son were killed in a two-vehicle accident Dec. 15 in southern Colorado.

Margaret Sanchez, who celebrated her 50th birthday on Dec. 13, was a nuclear materials specialist III. She joined the Lab in March 1973 as a respirator decontaminator in the former Health (H) Division.

Anthony J. Sanchez, 49, was a chemistry lab technician in C-ACS. He came to the Laboratory as a student in 1972 and became a fulltime Lab employee two years later in the former H Division.

According to the Colorado State Police, the Sanchez family was traveling on Colorado State Road 160 west of Walsenburg when their pickup truck hit a patch of ice and spun into an oncoming semi-truck. Police said high winds and adverse driving conditions were a factor in the accident.

The Sanchezes are survived by a son, Kevin, 23, and extended family members.



Holiday Drive wraps up work-force generosity

Laboratory workers once again showed their generosity for the less fortunate in Northern New Mexico through this year's Holiday Drive. More than 500 Angel Tags were selected and 53 families were "adopted" by Laboratory organizations and individuals, according to Debbi Wersonick of the Community Relations Office (CRO), which coordinates the annual drive. Each Angel Tag listed the name of a child and a description of a toy and clothing item the child requested. Personnel from the Salvation Army were at the Laboratory Dec. 16 to collect toys, clothing and nonperishable food items, such as these at the Chemistry (C) Division Office at Technical Area 48 and other collection points set up around the Lab. Items collected were distributed by the Salvation Army. Photo by Josh Smith, Chemistry (C) Division

The year in review

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Three honored with Laboratory fellows prize — Carol Burns of the Chemistry (C) Division, Robert Hixson of High Explosives Science (DX-2) and Roman Movshovich of Condensed Matter and Thermal Physics (MST-10) were recipients of the 2002 Laboratory Fellows Prize presented in 2003. The Fellows Prize recognizes high-quality published research in science and engineering that has a significant impact on a particular field or discipline.

Distinguished postdoc awards — My Hang Huynh of High Explosives Science (DX-2) and Sergey Trudolyubov of Space and Remote Sensing Sciences (ISR-2) received the second-annual Postdoctoral Distinguished Performance Award. The PDPA recognizes outstanding and unique contributions by Laboratory postdocs that result in a positive and significant impact on the Laboratory's programmatic or organizational efforts or status in the scientific community.



Lab procurement personnel recognized — Thirty-five Laboratory procurement personnel in the Chief Financial Officer (CFO) and Supply Chain Management (SUP) divisions were recognized for outstanding contributions to the Laboratory's 2002 fiscal year socioeconomic business achievements. The employees were lauded for directing Laboratory business to small-business owners and operators in the region and across the country, including companies who are HUB-zone certified.



R&D 100 winners — The Laboratory garnered eight R&D 100 awards presented by R&D Magazine. The Lab has received 89 R&D 100 awards since it began competing in 1978. The competition is designed to honor significant commercial promise in products, materials or processes developed by the international research and development community.

Two Lab organizations receive Quality New Mexico Awards — Risk Reduction and Environmental Stewardship (RRES) and Nuclear Materials Technology (NMT) divisions are 2003 Piñon award-winners in this year's Quality New Mexico awards program. The groups were honored for "serious commitment to quality concepts and principles," according to Quality New Mexico. The Piñon Award is the first of three award levels.

Mee named Minority Small Business Advocate — Stephen Mee, Integrated Projects (FWO-IP) Office, was named the Minority Small Business Advocate of the Year for New Mexico by the federal Small Business Administration. Mee was nominated for the award by the Laboratory's Small Business Office (SUP-4).



Steve Mee, left, of the Cerro Grande Rehabilitation Project (FWO-CGRP) Office, with Rep. Tom Udall, D-N.M.

Green Zia awards in recognition of pollution prevention efforts — Four Laboratory divisions received awards at the 2003 Green Zia Environmental Excellence recognition program for their efforts in pollution prevention. The Dynamic Experimentation (DX), Engineering Sciences and Applications (ESA) and Nuclear Materials Technology (NMT) divisions received "Achievement" level recognition, while the Facility and Waste Operations (FWO) Division received the "Commitment-level" recognition.

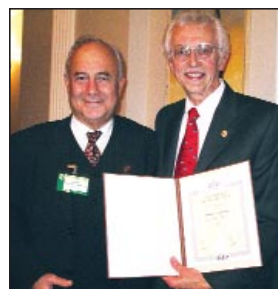
Text by Kathryn Ostic
Design by Denise Bjarke

Five Lab inventions receive technology maturation funds — Tony Burrell, Chemistry (C) Division; Jacek Dziewinski of the Risk Reduction and Environmental Stewardship (RRES) Division; Lakshman Prasad and Alexei Skourikhine of the then Nonproliferation and International Security (NIS) Division; and Louis Rosocha of the Physics (P) Division received monetary awards through a technology-maturation funding program designed to give Laboratory inventors a boost in moving their inventions from the benchtop to the marketplace.

Cowan and Rosen presented with Los Alamos Medal Awards — The Los Alamos Medal for 2002 was presented to retired staff members George Cowan and Louis Rosen for their scientific contributions. The medal is the highest honor bestowed by the Laboratory. A Senior Laboratory Fellow, Cowan was honored for his pioneering work in radiochemical techniques and for his measurements of fundamental physical properties of neutrons from nuclear explosions. A Laboratory Senior Fellow Emeritus, Rosen was recognized for his leadership in conceiving and creating the Los Alamos Meson Physics Facility (LAMPF), a premier research facility at Technical Area 53. Both individuals also are recipients of the distinguished E.O. Lawrence Award.



Northern New Mexico students received educational assistance through Los Alamos Employees' Scholarship Fund — Forty-seven high school seniors and college students received 2002 through 2003 Los Alamos Employees' Scholarship Fund scholarships. Among the recipients were Katlin Okamoto who received the four-year, \$10,000-a-year, platinum scholarship and Naveen Sinha, Kariana Atkinson and Clay Cordova who each received \$2,500-a-year gold scholarships for four years.



Laboratory Senior Fellow Sig Hecker accepts membership in the Russian Academy of Sciences from the academy's vice president, Nikolay A. Platé.

Hecker inducted into Russian Academy of Sciences — Senior Fellow Sig Hecker of the Materials Science and Technology (MST) Division was inducted into the Russian Academy of Sciences. Hecker, Laboratory director from 1986 to 1997, was elected to the Academy as a foreign member in May and formally received his diploma and the Lomonosov gold-and-platinum pin in September during the 17th Mendeleev Congress on General and Applied Chemistry in Kazan, Russia.

Lab publications garners 16 Society for Technical Communications awards — Laboratory publications received 16 awards in the Society for Technical Communication's Southwest Regional Technical Publications and Technical Art competition. One Laboratory entry — "Laboratory Directed Research and Development Annual Report" cover design — received an Award of Distinguished Technical Communication in the technical art competition. The Award of Distinguished Technical Communication is the highest award of the Society of Technical Communications issues.

Krikorian honored with 2003 Medal — Laboratory Fellow Nerses "Krik" Krikorian was named the 2003 Los Alamos National Laboratory Medal recipient. Krikorian will receive his medal Feb. 19, 2004. Krikorian holds six patents and is the author of myriad analyses and technical assessments that range from laser isotope separation, high-temperature reactor materials, directed-energy nuclear weapons and nuclear weapons testing to arms control, counter-intelligence and nonproliferation.



Nerses "Krik" Krikorian

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