1943 - 2003
Los Alamos
NATIONAL LABORATORY
Ideas That Change the World
NewsLetter

Week of Sept. 1, 2003 Vol. 4, No. 18

Biggest cosmic explosions may propel fastest objects in universe

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.

Los Alamos researchers and their colleagues from the U.S. Naval Research Laboratory in Washington, D.C., and the University of Alabama at Huntsville report in the Aug. 14 edition of Nature of a newly identified pattern in the light from these enigmatic bursts that could be explained by protons moving within a hair's breadth of light speed.

These protons, like shrapnel from an explosion, could be UHECRs. Such cosmic rays are rare and constitute an enduring mystery in astrophysics, seemingly defying physical explanation, for they are simply far too energetic to have been generated by well-known mechanisms such as supernova explosions.

"Cosmic rays 'forget' where they come from because, unlike light, they are whipped about in space by magnetic fields," said lead author Maria Magdalena Gonzalez of Neutron Science and Technology (P-23) and a graduate student at the University of Wisconsin. "This result is an exciting chance to possibly see evidence of them being produced at their source."

Gamma-ray bursts — a mystery scientists are finally beginning to unravel — can shine as brilliantly as a million trillion suns, and many may be from an unusually powerful type of exploding star. The bursts are common yet random and fleeting, lasting only seconds.

Cosmic rays are atomic particles (for example, electrons, protons or neutrinos) moving close to light speed. Lower-energy cosmic rays bombard Earth constantly, propelled by solar flares and typical star explosions. UHECRs are a hundred-million times more energetic than the particles produced in the largest human-made particle accelerators.

Scientists say the UHECRs must be generated relatively close to Earth, for any particle traveling farther than 100 million light years would lose some of its energy by the time it reached us. Yet no local source of ordinary cosmic rays seems powerful enough to generate a UHECR.

The Gonzalez-led paper focuses not specifically on UHECR production but rather a new pattern of light seen in a gamma-ray burst. Digging deep into the Compton Observatory archives (the mission ended in 2000), the group found that a gamma-ray burst from 1994, named GRB941017, appears different from the other 2,700-some bursts recorded by the Compton Observatory. This burst was located in the direction of the constellation Sagitta, the Arrow, likely 10 billion light years away.

What scientists call gamma rays are photons (light particles) covering a wide range of energies, in fact, more than a million times wider than the energies our eyes register as the colors in a rainbow. Gonzalez's group looked at the higher-energy gamma-ray photons. The scientists found that these types of photons dominated the burst: They were at least three times more powerful on average than the lower-energy component yet, surprisingly, thousands of times more powerful after about 100 seconds.

That is, while the flow of lower-energy photons hitting the satellite's detectors began to ease, the flow of higher-energy photons remained steady. The finding is inconsistent with the popular "synchrotron shock model" describing most bursts. So what could explain this enrichment of higher-energy photons?

"One explanation is that ultrahigh-energy cosmic rays are responsible, but exactly how they create the gamma rays with the energy patterns we saw needs a lot of calculating," said Brenda Dingus of P-23 and a co-author on the paper. "We'll be keeping some theorists busy trying to figure this out."

A delayed injection of ultrahigh-energy electrons provides another way to explain the unexpectedly large high-energy gamma-ray

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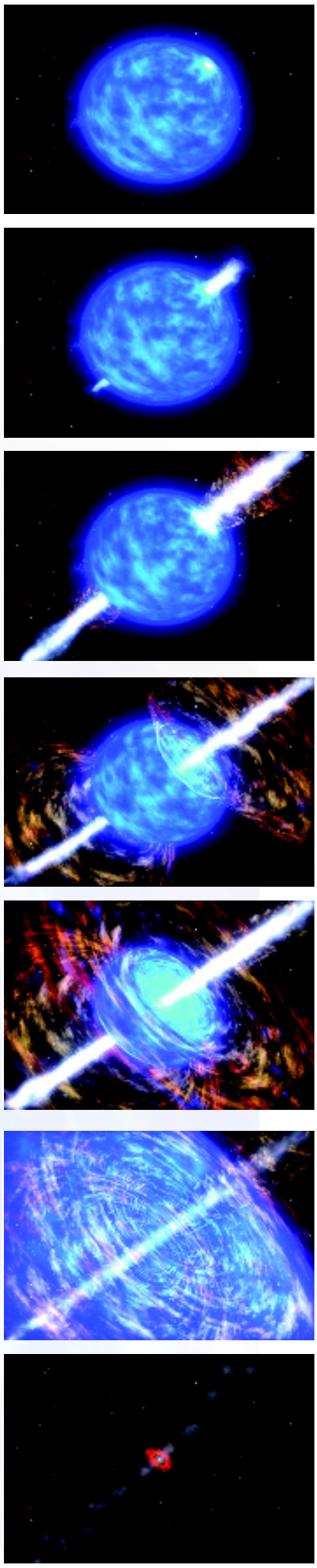

Pictured at right is a computer animation of a gamma-ray burst destroying a star. This blue Wolf-Rayet star — containing about 10 solar masses worth of helium, oxygen and heavier elements — has depleted its nuclear fuel. This has triggered a Type Ic supernova/gamma-ray burst event. The core of the star has collapsed, without the star's outer part knowing. A black hole forms inside surrounded by a disk of accreting matter, and, within a few seconds, launched a jet of matter away from the black hole that ultimately made the gamma-ray burst. Here, the jet (white plume) breaks through the outer shell of the star, about nine seconds after its creation. The jet of matter, in conjunction with vigorous winds of newly forged radioactive nickel-56 blowing off the disk inside, shatters the star within seconds. This shattering represents the supernova event.
Images courtesy of NASA/SkyWorks Digital

Inside this issue ...

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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FROM THE TOP

Laboratory selects Wells Fargo for corporate banking services

Richard Marquez

Wells Fargo Bank has been selected for award of a contract to provide corporate banking services for the Laboratory. The five-year agreement will strengthen the ability of the Laboratory and the University of California to manage, control and safeguard banking and business systems here.

"I view the selection of Wells Fargo as an integral part of the Laboratory's business improvement process," said Rich Marquez, associate Laboratory director for administration. "It is extremely important that the Laboratory's banking practices are reflective of our ongoing effort to improve every facet of our business practices."

The Laboratory decided to compete its corporate banking services agreement to ensure that the Laboratory's corporate banking practices would embrace recommendations in two external reviews of Laboratory banking practices and would be on par with the highest industry standards, which include state-of-the-art technological capability in connection with banking systems.

Proposals from the five banks that competed were ranked in 15 separate categories ranging from technical proficiencies and cash disbursement services to management of complex business systems. Wells Fargo rated highest in 10 of 15 categories. Moreover, their proposed, annual operating costs were lowest.

"The selection of Wells Fargo represents a best value and an immediate answer to the Lab's new, more stringent corporate banking requirements," said Marquez.

The selection is not expected to significantly affect employees' personal banking choices. Employees will continue to be able to select or use banking services at any institution that they feel best suits their individual needs. Direct depositing of paychecks will still occur for employees who have signed up for that service.

The current corporate-banking-services agreement, held by Los Alamos National Bank, will expire Sept. 30.

"I do want to acknowledge that Los Alamos National Bank has been a tremendous partner during the last two decades," said Marquez. "The change in agreement only reflects changing requirements at the Laboratory."

The agreement is worth approximately $87,000 a year for five years.

The U.S. Department of Energy and the National Nuclear Security Administration is a signatory to the banking services agreement and, consequently, must review the selection and proposed agreement before completion of the contract award process, which is scheduled for Oct. 1.

Orbit lands at the Lab

Albuquerque Isotopes mascot Orbit, gives Mary Ann Duran of Nuclear Materials Science (NMT-16) a hug while making a stop at Technical Area 55 to sell tickets to the Isotopes' Labor Day game. The club proclaimed the Labor Day game as Los Alamos National Laboratory Day at Isotopes Park. Orbit also sold tickets at the Otowi Building and several other Laboratory locations. Isotopes sales and marketing personnel and Orbit sold more than 1,200 tickets during the visit. At press time, Laboratory Director G. Peter Nanos was scheduled to throw out the ceremonial first pitch before the game against the Nashville Sounds. *Photo by Joe Riedel of Nuclear Materials Information Management (NMT-3)*

Laboratory releases pay equity study

The Laboratory has released a study of pay equity and hiring practices at the Laboratory.

The study — prepared by Finis Welch, professor emeritus at Texas A&M University — was released to the New Mexico Hispano Roundtable, the State Legislature's Laboratory Oversight Committee, Gov. Bill Richardson, the New Mexico congressional delegation, staff of the House Energy and Commerce Committee, Laboratory employees and other interested parties.

The Welch Study is the culmination of years of data collection and evaluation and examines pay and hiring issues at the Laboratory as well as how those issues affect minority and female workers.

The report can be found at *http://www.lanl.gov/worldview/news/welch.shtml* online.

2003 Hazmat Challenge features chem-bio weapons response

The largest field of contestants, including for the first time teams from outside New Mexico, and an action-packed schedule of events highlighted the 2003 New Mexico State Hazmat Challenge, Aug. 19 through 22 at the Laboratory.

Included in this year's technical events were a biological incident response scenario and a chemical identification exercise. Other hazmat response scenarios in this year's competition included complex valve leak; confined-space procedure; compressed, liquefied-gas leak; overturned gasoline tanker and railcar procedure; and damming and diking a hazardous material "gusher." The events closed with some fun contests, including a pie-eating competition and the ever-popular obstacle course — where teams wearing full hazmat protective gear raced the clock and each other through a creative and fun-filled course.

New Mexico teams participating included Los Alamos National Laboratory; Sandia National Laboratories; Intel; New Mexico State Police; NASA White Sands Test Facility; and the fire department hazmat teams from Santa Fe, Hobbs, Farmington and Gallup. Sixteen teams participated, including groups from Oklahoma, sponsored by the University of Oklahoma Southwest Center for Public Heath Preparedness. Personnel from the Federal Emergency Management Agency — Region Six and the U.S. Department of Transportation assisted in conducting the competition.

The technical events took place at the Technical Area 49 Hazmat Training Facility, Aug. 20-21. For the first time, all events ran concurrently, with eight events taking place simultaneously. "It was quite a spectacle," said Los Alamos' Hazmat Team Leader Fred Bolton. "Those two days were action-packed." The obstacle course competition took place Aug. 22 and was followed by the awards ceremony.

This year, Midwest City, Okla., was the overall winner.

Text and photos by Kevin Roark

A team member from Midwest City, Okla., this year's overall winner, works diligently to follow this obstacle's instructions to "fix this leak" on the hazmat training facility's valve tree. This was the first year teams from outside New Mexico participated in the Hazmat Challenge.

The Los Alamos National Laboratory team, decked out in their fully encapsulated Class A protective equipment, tackle a simulated one-ton leaking compressed gas/chlorine tank. Chlorine and compressed gas leaks can be very complicated problems, made even more difficult by the Class A protective suits that limit the responder's vision and communications.

Wasting no time, members of the Española Fire Department hazmat team carefully cut a hole into an overturned gasoline tanker truck to begin the fuel offloading process — all part of the 2003 New Mexico State Hazmat Challenge that took place Aug. 19-22.

Members of the Las Cruces Fire Department hazmat team exit the confined-space apparatus at this year's Hazmat Challenge. The confined-space scenario requires two-man teams in firefighting bunker gear and breathing apparatus to enter a pitch-black smoke-filled space, find and recover a downed victim and complete a variety of other tasks — all in blistering heat.

Editor's note: Many local school districts in Northern New Mexico have started the 2003-04 school year in the past several weeks. Laboratory personnel are reminded to be alert for school children and reduce speed in school zones. The posted speed limit in school zones when children are present is 15 miles per hour.

Back to school safety tips

According to the American Red Cross, 25 million students ride on school buses. Children riding a bus to school should follow these safety tips to help prevent injury.

- Line up facing the school bus door — not along the side of the school bus.
- Don't play in the street while waiting for the school bus.
- Carry belongings in a backpack or book bag.
- Never reach under a school bus to get anything that has rolled or fallen underneath it.
- After getting off the school bus, move immediately onto the sidewalk, out of traffic.
- Wait for a signal from the bus driver before crossing the street. Walk at least 10 steps away from the front of the bus so that the bus driver can see you.
- Never cross the street behind the school bus.

Following these tips will make the first school day, and every school day, safe and enjoyable.

Motorists also are reminded to use extra caution in and through school zones and to obey posted speed limits in school zones.

UCTV programs now on Los Alamos PAC 8

University of California Television programming is now on Public Access Channel 8, Los Alamos' community television station.

Residents must have basic cable television service with Comcast Cable to view PAC 8.

University of California television features programs from its campuses and national laboratories, including interviews, lectures, documentaries and specials covering subjects such as health and medicine, science, public affairs and the arts.

PAC 8 features UCTV's programs every weekend, beginning at 9 p.m. Friday to 5 p.m. Saturday. PAC 8 picks up UCTV programming again at 9 p.m. Saturday continuing through 7 a.m. Sunday.

For a detailed program schedule, show descriptions and more information, go to *www.uctv.tv* online. UCTV also can be seen on the Internet through "video-on-demand" streaming video at *www.uctv.tv* online.

For more information about Los Alamos PAC 8, go to *www.losalamos.com/pac8/* online.

Editor's note: Some of the individuals listed below are no longer employed at the Laboratory but were at the time they applied for the patent.

Recently issued patent awards

Imaging and Timing Aray Sensor Apparatus and Method
Patent No. 6,583,863 issued June 24
R.C. Smith of Biological and Quantum Physics (P-21)
An apparatus and method for generating a three-dimension image of an object or target.

Enhanced Tamper Indicator
Patent No. 6,588,812 issued July 8
Anthony Garcia and **Roger Johnston** of Advanced Chemical Diagnostics and Instrumentation (C-ADI)
The present invention provides an apparatus and method whereby the reliability and tamper-resistance of tamper indicators can be improved.

Polymer-assisted Aqueous Deposition of Metal Oxide Films
Patent No. 6,589,457 issued July 8
Alexander Dequan Li and **Quanxi Jia** of the Superconductivity Technology Center (MST-STC)
This patent presents an organic, solvent-free process for deposition of metal oxide thin films.

Method for Detecting Biological Agents
Patent No. 6,589,731 issued July 8
Liaohai Chen, **Hsing-Lin Wang** and **David George Whitten** of the Michelson Resource (B-4); and **Duncan McBranch** of Physical Chemistry and Applied Spectroscopy (C-PCS)
This patent provides a sensor element, including a polymer exhibiting a measurable property from the group of luminescence and electrical conductivity, the polymer being complexed with a unit including a recognition element, a tethering element and a property-altering element bound thereto so as to alter the measurable property, the unit being susceptible of subsequent separation from the polymer upon exposure to an agent having an affinity for binding to the recognition element whereupon the separation of the unit from the polymer results in a detectable change in the measurable property.

Use of Prolines for Improving Growth and Other Properties of Plants and Algae
Patent No. 6,593,275 issued July 15
Clifford Unkefer and **Rodolfo Martinez** of Szilard Resource (B-3)
Increasing the concentration of prolines, such as 2-hydroxy-5-oxoproline, in the foliar portions of plants has been shown to cause an increase in carbon dioxide fixation, growth rate, dry weight, nutritional value (amino acids), nodulation and nitrogen fixation, photosynthetically derived chemical energy, and resistance to insect pests over the same properties for wild type plants.

A High-pressure Neon Arc Lamp
Patent No. 6,593,706 issued July 15
Robert Sze of Physical Chemistry and Applied Spectroscopy (C-PCS) and **Irving Bigio** of Szilard Resource (B-3)
A high-pressure, neon arc lamp and method of using the same for photodynamic therapiesd.

Magnetic Process for Removing Heavy Metals from Water Employing Magnetites
Patent No. 6,596,182 issued July 22
F. Coyne Prenger, **Dallas Hill** and **Robert Wingo** of Applied Engineering Technologies (ESA-AET); and **Dennis Padilla** and **Laura Ann Worl** of Actinide and Fuels Cycle Technologies (NMT-11)
A process for removing heavy metals from water. The process includes the steps of introducing magnetite to a quantity of water containing heavy metal.

Air Breathing Direct Methanol Fuel Cell
Patent No. 6,596,422 issued July 22
Xiaoming Ren of Electronic and Electrochemical Materials and Devices (MST-11)
A method for activating a membrane electrode assembly for a direct methanol fuel cell.

Real Time Viability Detection of Bacterial Spores
Patent No. 6,599,715 issued July 29
Laura Vanderberg of Analytical Chemistry Sciences (C-ACS); and **Timothy Herdendorf** and **Richard Obiso Jr.** of the then-C-4

Incorporation of Additives into Polymers
Patent No. 6,599,962 issued July 29
Thomas McCleskey and **Matthew Yates** of Actinide, Catalysis and Separations Chemistry (C-SIC)

For more information regarding intellectual property, go to the Industrial Business Development (IBD) Web site at *http://www.lanl.gov/partnerships/* online.

Biggest cosmic explosions …

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flow observed in GRB 941017. But this explanation would require a revision of the standard burst model, said co-author Charles Dermer, a theoretical astrophysicist at the U.S. Naval Research Laboratory.

"In either case, this result reveals a new process occurring in gamma-ray bursts," Dermer said.

Gamma-ray bursts have not been detected originating within 100 million light years from Earth, but through the eons these types of explosions may have occurred locally. If so, Dingus said, the mechanism her group saw in GRB941017 could have been duplicated close to home, close enough to supply the UHECRs we see today.

Other bursts in the Compton Observatory archive may have exhibited a similar pattern, but the data are not conclusive. NASA's Gamma-ray Large-Area Space Telescope, scheduled for launch in 2006, will have detectors powerful enough to resolve higher-energy gamma-ray photons and solve this mystery.

The Compton Gamma Ray Observatory was the second of NASA's great observatories and the gamma-ray equivalent to the Hubble Space Telescope and the Chandra X-ray Observatory. Compton was launched aboard the space shuttle Atlantis in April 1991 and at 17 tons was the largest astrophysical payload ever flown at that time. At the end of its pioneering mission, Compton was deorbited and re-entered Earth's atmosphere on June 4, 2000.

New digs ...

Calling the Emergency Operations Center "a symbol of cooperation between the Lab and local governments," the Laboratory and Los Alamos County last month dedicated the new EOC at Technical Area 69. The new EOC is a two-story multi-agency facility that spans 38,000 square feet and has space for 120 people. The facility includes office space for agencies, 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 situations that arise. At right is Los Alamos Fire Department Chief Doug MacDonald, left, with Sen. Pete Domenici, R-N.M.

Samy Smith of Protection Technology Los Alamos, who works for Security Systems (S-3), pulls down a tarp covering the entrance to the new S-3 building, which was dedicated last month at Technical Area 3. The building will house more than 50 S-3 employees now located at three different locations.

Linton Brooks, left, administrator of the National Nuclear Security Administration speaks during the groundbreaking ceremony of the National Security Sciences Building at Technical Area 3. An artist's rendering of the building is shown above. The 275,000-square-foot building will replace the present Administration Building when completed in 2006. At right, a backhoe dumps the first bucket of dirt at the site of the new building at TA-3.
Photos by LeRoy N. Sanchez

DPIP
Director's Performance Improvement Program

New Cost Allowability Board reviews Laboratory's business transactions

by Kathryn Ostic

The Laboratory has established a Cost Allowability Board to determine the allowability of Lab transactions that may be questionable. The new board acts as an advisory body to the Chief Financial Officer (CFO) Division for help in resolving a number of cost-allowability issues arising from recent audits and reviews.

"The objective of the board is to make managers' lives easier by providing another tool to help them make decisions about acceptable practices," said Tim Tuttle, acting chairman of the Cost Allowability Board.

According to the Allowability Review Board charter, the chief financial officer within the CFO Division assumed responsibility as the Laboratory's allowable cost-determination official in 1997. The CFO is the focal point for internal determinations of allowable costs and requests external determinations from the National Nuclear Safety Administration Los Alamos Site Office's contracting officer, when appropriate. Accounting (CFO-1) assumed these responsibilities over the last several years; however, the board and its functions are an addition rather than a replacement for the existing activities. The board's power to make cost-allowability determinations is delegated from the CFO who retains the final allowability determination authority.

The following Lab employees are members of the new advisory board: Tuttle, Compliance/Control (CFO-4); Rocke Johnson, CFO-1; Carol Salazar, Internal Audits (AA-3); Frank Dickson, Laboratory Counsel (LC); Brendon Sehorn, Institutional Budget Office (CFO-2); Tommy Hook, Procurement (SUP-1); Carolyn Wolf, Business Law (LC-BL); Joseph Ortega, Quality Improvement Office (QIO); and Julia Crespin, CFO-2.

"The board also makes sure that the rules don't get in the way of meeting the Lab's mission while adhering to the contract. It's a fine balance, because if you tell Laboratory staff they can't do something, they won't. However, everyone needs to know what the rules are to do their job," Tuttle said.

"In addition, individuals can either meet with the board or send a note, whichever is most comfortable. However, if a decision requires a fast turnaround, a just-in-time decision is made; if not, decisions are made at the bimonthly meetings. CFO-1 also will be the official record keeper," he said.

For more information about allowable/unallowable costs, go to the Web site at *businternal.lanl.gov/cfo1/UnallowableCosts/default.htm* online or contact Stephanie Segura of CFO-1 at 5-2625 or write to *segura_stephanie@lanl.gov* by e-mail.

Neff named chief information officer

Raymond Neff is the new chief information officer for Los Alamos National Laboratory.

Neff most recently was chief information officer at the U.S. Naval War College, Newport, R.I., where he is credited with creating an information-technology strategic plan and a strengthened information security program.

Raymond Neff

"Information management is a crucial part of the Los Alamos strategy for performance improvement," said Interim Director G. Peter Nanos in announcing the appointment. "Raymond Neff's outstanding experience at some of the nation's top educational institutions over the past three decades makes him the ideal choice to lead this key aspect of the Laboratory's infrastructure."

Previously, Neff spent 14 years in Cleveland, Ohio, at Case Western Reserve University, where he held the position of vice president for information services and chief information officer. He also was an independent consultant there, designing sophisticated information-technology systems for educational institutions.

Before moving to Cleveland in 1988, Neff served the University of California, Berkeley, as associate professor of biostatistics for the university's School of Public Health and simultaneously as the university's assistant vice chancellor for informaton systems and technology.

Earlier, he was assistant professor of biostatistics at Harvard University's School of Public Health, director of the Health Sciences Computing Facility for the Harvard Medical School Campus and director of computing services at Dartmouth College.

A 1964 graduate of Dartmouth College with a bachelor's degree in mathematics, he later was awarded both master's and doctoral degrees in biostaticstics and scientific computing by Harvard University.

Harris/Wallace selected deputy division leaders

Michael Harris and **Ray Wallace** have been selected as deputy division leaders in the Facility Waste Operations (FWO) Division. Harris will lead Infrastructure and Support Services groups, while Wallace will lead Facilities Operations in the facility-management units.

Harris has more than 20 years of experience in broad-based management and technical consulting to nuclear and non-nuclear facilities. He also has four years of Laboratory experience in FWO-SEM as an engineering group leader and later a program manager for the facility and revitalization project in Systems, Engineer and Maintenance Group (SEM).

Wallace has more than 30 years of extensive experience as a nuclear operations and engineer in the United States Navy as commanding officer. He also has two-and-half years of experience with the Lab as a facility manager and facility operations group leader at Nuclear Materials Technology's (NMT-8) plutonium facility in Technical Area 55.

Michael Harris

Ray Wallace

Girrens new ESA leader

Steven Girrens, a mechanical engineer and 24-year Los Alamos National Laboratory veteran, is the new leader of the Laboratory's Engineering Sciences and Applications Division.

Girrens will provide scientific and technical leadership to the 800-person division in developing and sustaining engineering technologies that support the Laboratory's stockpile stewardship mission. He also will oversee engineering facilities at technical areas 16 and 21.

"Steve has expertise in engineering and technology development as well as management experience at multiple levels at the Laboratory," said Rich Mah, associate director for weapons engineering and manufacturing. "His combined technical expertise and management experience make him the ideal choice for this position."

During his career at Los Alamos, Girrens has worked in engineering analysis and engineering mechanics. He also has extensive experience in technology development and has coordinated technology transfer and commercialization initiatives. He has 14 years of management experience, including positions as section leader, project leader, assistant program manager and acting deputy division leader. Since 1996, he has served as leader of ESA's Engineering Analysis and Weapon Response groups.

Steve Girrens

"I am pleased to be selected as ESA division leader and honored with the trust being placed in me to guide a course to assure that our facilities, tools and work processes are up to the same high standards as our skilled and knowledgeable work force," Girrens said. "As much as any division in the Laboratory, ESA Division's responsibility is the nation's stockpile.

"But the stockpile will evolve, and we will be expected to respond and meet new engineering challenges through our technical competence and leadership, with a dependable, can-do demeanor. ESA Division has outstanding people, and I am enthusiastic about prospects for our future," Girrens added.

Girrens is a registered professional engineer in New Mexico, a member of the

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In Memoriam

Alvin D. Van Vessem

On May 5, 1945, 18 men posed nonchalantly in front of a stack of wooden boxes containing 100 tons of TNT. These 18 men, Alvin D. Van Vessem among them, had manhandled, none-too-gently, these boxes of high explosives into position more than 25 feet above the desert floor of the Jornada del Muerto. At 4:37 a.m. MWT on July 7, the 100 Ton Test was successfully detonated. This test was both a dry run for the upcoming Trinity Test as well as a test of experimental procedures. Van Vessem died at 85 on July 9.

Van Vessem was born Feb. 18, 1918, in Warwick, New York. After graduating from high school, he went to work first for the New York Telegraph Co. and later for Western Union, while working on a degree in mechanical engineering. Shortly after induction into the Army, Van Vessem was selected for the Special Engineer Detachment, which was composed of enlisted personnel having technical training and experience. Van Vessem subsequently was assigned to Los Alamos in March 1944 and began work on high-explosives development at S-Site.

As work on the implosion bomb, known as Fat Man, progressed, X Division leader George Kistiakowski, carved out a small area of S-Site to "weaponize" the design of the combat units. Van Vessem transferred to this new area, V-Site and became one of a very few men to work out the high-explosive assembly procedures for the first implosion devices. On July 12, barely two months after returning to Los Alamos from the 100-Ton-Test site, Van Vessem and seven others assembled the high-explosive sphere to be used for the Trinity Test. At midnight July 12, Van Vessem climbed into the cab of the truck carrying the completed sphere and rode shotgun to Trinity Site. At ground zero, Van Vessem assisted in the final assembly of the Trinity bomb.

After the Trinity Test, Van Vessem returned to Los Alamos and worked on subsequent high-explosive Fat Man assemblies. When the war ended, Van Vessem remained at Los Alamos working in X-7, the Detonator Development Group, until he accumulated enough points to get his discharge from the Army. He did so in December 1945. He immediately became a University of California employee and continued his work with X-7. In the spring of 1946, Van Vessem became part of B Division, which had been created to conduct the Crossroads tests at Bikini Atoll. Once again, Van Vessem became responsible for the high-explosives assemblies for Fat Man test units. He escorted the high explosives to Bikini and completed final assemblies for both tests.

In November 1946, Van Vessem took a leave of absence to work on a degree in mechanical engineering, which he had started before joining the Army. Van Vessem received a bachelor of science degree in mechanical engineering from Northeastern University in early 1947. He returned to Los Alamos and X-7, later GMX-7 and WX-7. He remained in the same group throughout the remainder of his career at Los Alamos becoming alternate group leader in 1954, a position he held until his retirement in 1981.

He is survived by his son Alan of Materials Management (SUP-3) and Alan's wife, Carol, and their children Jennifer and Jesse.

August employee service anniversaries

35 years
Harold Rogers Jr., X-2

30 years
Robert Benjamin, DX-3
Joaquin Garduno, IM-3
Peter Herczeg, T-16
Max Maes, RRES-WQH
Joseph Repa Jr., DX-DO
Arthur Sena, CCN-4
Pete Trujillo, IM-4
Gregory Wentz, CCN-2

25 years
Ronald Aguilar, FWO-MSE
Charles Bathke, D-3
John Borrego, NMT-5
Paul Channell, LANSCE-1
Donna Crook, SUP-1
Joey Donahue, LANSCE-7
Allan Hauer, P-DO
Joni Hyder, HSR-1
C. Jake Martinez, RRES-MAQ
Genara Jaramillo, ESA-OPS
S. Kathleen Kelly, CFO-2
Mike Lopez, MST-8
Larry Maassen, RRES-ECR
Elaine Martinez, DX-7
Samuel Montoya, CFO-3
Raymond Scarpetti, DX-6
Sue Sebring, SUP-1
Wayne Slattery, X-4

20 years
Roy Bohn, RRES-ECR
Gerald Bolme, LANSCE-5
Stephen Depaula, DX-1
E.C. Flower-Maudlin, X-4
Roger Goldie, ESA-OPS
Lenora Herrera, LC-LM
James Lamb, IM-3
Laurie Lauer, MST-CINT
Frances Montoya, S-4
Patricia Nickel, D-3
Steven Ortiz, ESA-WMM
Paul Pan, D-2
James Pecos, NMT-4
Mark Pickrell, RRES-EA
Kevin Ramsey, NMT-15
Joseph Roybal, ESA-AET
Rose Sanchez, ESA-WMM
Wayne Smith, MST-11
Marja Springer, EES-6
Ray Stringfield Jr., X-1
Sandra Trujillo, HSR-1
Teresa Trujillo, SUP-4
Stephen Yarbro, NMT-DO
Tresa Yarbro, NMT-4

15 years
Christopher Barrett, CCS-5
Marilyn Berrigan, PS-13
Marsha Boggs, CCN-12
Paul Brunner, ESA-WMM
Beverly Chavez, X-DO
Joseph Gutierrez, NMT-5
Houston Hawkins, DIR
Willie Haynes Jr., HSR-1
Dolores Jacobs, HR-TD
Dawn Lewis, HSR-4
Matthew Lewis, ESA-WR
Gloria Long, ESA-EM
Juan Lujan, SUP-3
Mike Marquez, NMT-4
Arsenio Martinez, NMT-11
Donald Martinez, DX-3
William Miller, FWO-CMR
Russell Mortensen, P-23
Jose Olivares, B-4
Renee Pacheco, S-5
William Partain Jr., NMT-14
Steen Rasmussen, EES-6
Larry Tellier, NIS-2
Rodney Temple, DX-6
Dolores Trujillo, CCN-2
Alvin Valdez, SUP-3

10 years
Blair Art, NMT-15
David Beddingfield, NIS-5
Raul Bradley, X-2
Rebecca Chamberlin, C-DO
Steven Croney, S-4
Charles Davis, PS-DO
Vanessa De La Cruz, CER-30
Kathy DeLucas, CER-20
George Havrilla, C-ACS
Quanxi Jia, MST-STC
Robert Kares, X-8
Matthew Martinez, NMT-5
Maryann Martinez, B-DO

5 years
Ronald Allen, NMT-16
James Arellano, DX-5
James Baker, HSR-6
Wei Bao, MST-10
Michael Baumgartner, LANSCE-7
Forrest Brown, X-5
Kory Budlong-Sylvester, NIS-7
Richard Bynum, ADWEM
Christopher Catlett, ESA-GTS
A. Chris Martinez, NMT-7
Nicholas Curro, MST-10
Deborah Daymon, FWO-SWO
Madeline Donohoe, P-23
Eric Dors, NIS-1
Malcolm Ennis, HSR-4
Greg Erpenbeck, RRES-SWRC
Janet Faught, IM-2
Louis Fresquez, HSR-4
David Fuehne, RRES-MAQ
Pamela Garrett, NIS-17
Lloyd Gordon, LANSCE-DO
Kerry Habiger, NIS-10
Michael Hamada, D-1
John Harrison, LANSCE-5
Pamela Hundley, C-PCS
Edward Jacquez, DX-6
Donald Jaramillo, NMT-7
Kevin John, C-SIC
Gregory Kaduchak, MST-11
Cris Lewis, C-ACS
Janet Lovato, LANSCE-6
Sarah Lownes, IM-8
Matthew Lusk, LANSCE-6
Monica Maestas, ESA-WMM
Joyce Marquez, ESA-WSE
Yvette Martinez, MST-7
Javier Martinez, STB-RL
Paul Martinez, MST-6
Theresa Martinez, NMT-3
Ross Meyer, DX-5
Dimitri Mihalas, X-3
Rick Mooday, ESA-WMM
Sandra Moreno, LC
Richard Nelson, FWO-PCM
Jon Oien, DX-5
Melissa Reed, DX-6
Jennifer Rezmer, MST-OPS
Jeffrey Scott, STB-RL
Yulin Shou, B-2
Robert Stearns, ESA-MPO
John Steinberg, NIS-1
Julia Thompson, ESA-TSE
Bradley Vierra, RRES-ECO
Bert Vigil, HSR-1
Janelle Vigil-Maestas, SUP-4
John Walter, X-7
Jonathan Yarrington, HR-C

Are you safe at work?

Even simple tasks can be dangerous if not properly checked. Here is a safety checklist from the Health, Safety and Radiation Protection (HSR) Division to help identify potential hazards.

- Can I come into contact with any energy source (electrical, chemical, hydraulic, etc.)?
- Can I come into contact with any hazardous material (chemicals, fumes, air pollutants, etc.)?
- Can I be struck by anything (moving or flying objects, falling materials)?
- Can I strike against anything (stationary or moving objects, protruding objects, sharp or jagged edges)?
- Can I get caught in, on or between anything (pinch points, protruding objects, sharp or jagged edges)?
- Can I slip, trip or fall (on same level, to a higher or lower level)?
- Can I be injured by poor job design hazards (frequency of movements, forceful exertions, stressful postures, etc.)?

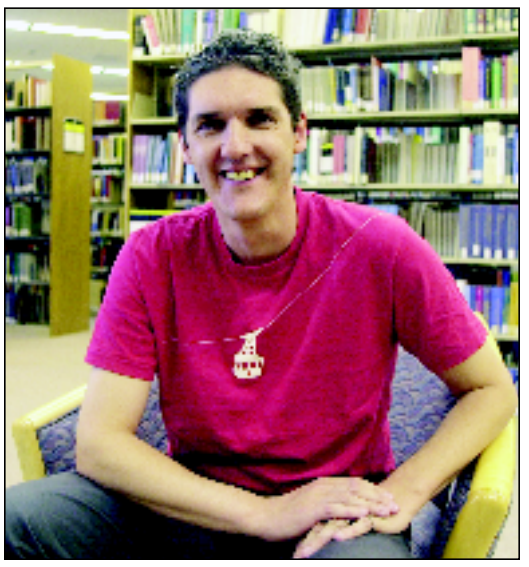
If the answer to any of these questions is yes, learn what precautions are necessary to lessen or prevent accidents.

Girrens...

continued from Page 6

American Society of Mechanical Engineers and a member of the University of New Mexico Mechanical Engineering Advisory Council. He holds a doctoral degree from Colorado State University and master's and bachelor's degrees from Wichita State University, all in mechanical engineering. .

Van de Sompel honored with Frederick G. Kilgour Award



Herbert Van de Sompel

Herbert Van de Sompel of the Research Library (STB-RL) received the 2003 Frederick G. Kilgour Award in Toronto at the annual conference of the American Library Association.

The Kilgour Award is granted for research in the field of library and information technology that impacts the way data is published, stored, retrieved, disseminated or managed. The Online Computer Library Center Inc. and the Library and Information Technology Association, a division of the ALA, sponsor the award.

"Van de Sompel's work has contributed significantly to two major current developments in our field: linking technologies and metadata harvesting," said Larry Woods, chairman of the award committee.

Van de Sompel began his 17-year career in the library-automation field in Belgium. He came to the Lab's Research Library in 1999 to complete his doctoral research on context-sensitive reference linking. At the same time, he worked on a protocol for metadata harvesting that facilitates the exchange of data between computers. After six months, he returned to Belgium and subsequently moved to Cornell University and later to the British Library. He currently serves as team leader of Digital Library Research and Prototyping.

"It's not exactly a Nobel Prize, but in the library information technology community, it doesn't get any better than this. The award presents a great opportunity to thank my close collaborators Carl Lagoze of Cornell University and Patrick Hochstenbach of the Research Library," Van de Sompel said.

Van de Sompel earned master's degrees in mathematics and computer science and a doctorate in communication science from Ghent University in Belgium

Where the buffalo roam

by Ed Kellum

Nestled in the mountains of Truchas is the Sol y Sombra Ranch, second home to Jerry and Camilla Lopez of Telecommunications (CCN-4) and the Ombuds Program Office respectively. The Lopez family, which includes charming 14-month-old Dimitri, has an unusual weekend hobby surrounding their new pets. In December, three North American bison, or buffaloes, joined the Lopez family. Referred to as "the girls," Monte, Mocha and Montana have created quite a stir in the local community. "People in Truchas must think we're crazy," stated Camilla.

The herd was recently doubled when four new members, including a young bull named Junior, a mother named Ledoux, her calf and "the sister" of Ledoux, joined the girls at the ranch. "We wanted a weekend hobby, and it gives us something joyful to do," commented Camilla. "Truchas is much different from Copenhagen where I grew up. Reading about Laura Ingles Wilder, I could only dream of this as a child. I never thought I would be able to experience buffalo and the prairie."

According to Jerry, a buffalo has an average speed of 30 mph and females can weigh up to 1,100 pounds while a male can weigh up to 2,200 pounds. "Buffaloes are much smarter than cows. They are curious about their environment and investigate their surroundings. There are no natural predators for them to be afraid of, so they are usually very mellow," he added.

The peaceful atmosphere and majestic scenery enrich the romantic draw of the ranch and give a glimpse of a simpler life. The Sol y Sombra is full of interesting landmarks and historical scenes that capture the imagination, including an "enchanted circle" of ponderosa pine, an old potato farmhouse and a "ghost tree" that Camilla wants Jerry to carve into a totem pole. At an elevation close to 8,500 feet, the ranch has an extraordinary view of Truchas peak and shelters other fascinating wildlife. At Casa Lopez, hundreds of hummingbirds feed on the deck while two curious horses named Sugar and Blue beg for attention. The incredible beauty that surrounds the Sol y Sombra is truly a sight to see, especially if you are looking for a little buffalo and a lot of hospitality.

Jerry and Camilla Lopez of Telecommunications (CCN-4) and the Ombuds Program Office respectively are shown with "the girls" at the Sol y Sombra Ranch in the mountains of Truchas. Three North American bison joined the Lopez family in December. In July, the Lopez' acquired four more buffalo, including a mother and her calf, left photo below. Pictured below at right are the family's two horses, Sugar and Blue, cooling off in a stream while grazing. *Photos by LeRoy N. Sanchez*

Camilla, left, and Jerry Lopez of the Ombuds Office and Telecommunications (CCN-4) respectively and 14-month-old Dimitri enjoy what they call their second home, the Sol y Sombra Ranch. The Sol y Sombra is full of interesting landmarks and historical scenes, as well bucolic ones, that capture the imagination.

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