

Sandia researchers win seven R&D 100 Awards

It's the most awards to Labs since 1997; most are in partnership with companies, other labs

By Neal Singer

Showing great competitiveness, Sandia researchers won seven R&D 100 awards this year. The annual contest is sponsored by the Chicago-based trade magazine *R&D Magazine* to determine the best applied new technologies.

The seven winning technologies that Sandia either spearheaded or had a hand in are the SnifferStar chemical sensor, MEMS-based adaptive optics phoropter, extreme acoustic telemetry, the low emissions atmospheric metering separator (LEAMS), inert cast-to-shape microvalves for high-pressure fluidics, the extreme ultraviolet lithography full-field stepscan system, and the emitter turn-off (ETO) thyristor.

Most are in partnership with private companies, other labs, or universities.

Three of the awards are for work primarily at the Sandia/California site.

The seven prizes won by Sandia this year are the most the Labs has won since it garnered eight, its most ever, in 1997. Last year Sandia

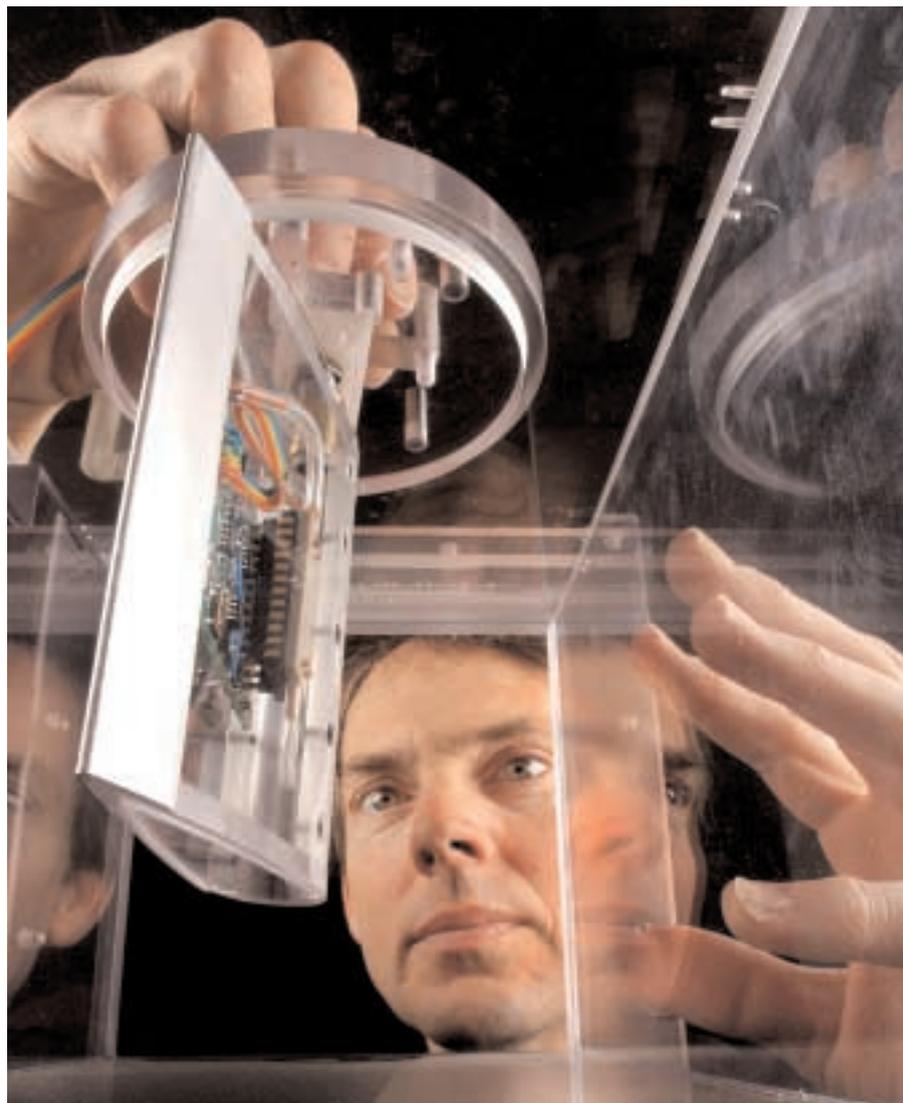
received two. In the four years before that, the Labs never received more than three. The seven this year was second only to Los Alamos National Laboratory, which won eight. Lawrence Livermore National Laboratory won six awards.

One hundred winners are selected by the magazine's editors and technical experts from an international pool of contestants from universities, private corporations, and government labs. The research community's recent emphasis on technology transfer has boosted the number of joint public-private submissions.

The R&D 100 Awards — sometimes hopefully referred to as “the Nobel Prizes of technology” — were first awarded in 1963 as the I-R 100s, in keeping with the original name of the magazine, *Industrial Research*. Over the follow-

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Over the years, award winners have included such familiar technologies as Polacolor film (1963), the fax machine (1975), the liquid crystal display (1980), the printer (1986), Taxol anticancer drug (1993), lab on a chip (1996), and HDTV (1998).



SNIFFERSTAR, a Sandia/Lockheed Martin Shared Vision project led by Doug Adkins (1764, above), was named one of seven Sandia R&D 100 Award winners for 2003.

(Photo by Randy Montoya)

Sandia LabNews

Vol. 55, No. 15

July 25, 2003



Managed by Lockheed Martin for the National Nuclear Security Administration

Sandia microdevice rapidly separates proteins, researchers report in *Science*

Particles preconcentrated without muss or fuss for homeland defense or lab chromatography

By Neal Singer

A microdevice has been demonstrated at Sandia to easily collect and release proteins in aqueous solution in less than a second. The development was reported last Thursday (July 17) in the journal *Science*.

The business end of the device looks like the gold-coated spine of a very tiny mouse, with each “vertebrae” line separated from the next by about a third the width of a human hair. The device separates proteins from solution and from each other by electrically heating the tiny metal lines to alter surface properties, says Dale Huber (1122) and Bruce Bunker (1141). Other members of the team are Ron Manginell (1764), Michael Samara

(no longer at Sandia), and Byung-Il Kim (1141).

“We capture and release on command very quickly and from very definite locations,” says Dale of the research group’s ability to send current to selected heat lines, mimicking electrically the chemical separation methods of industry-standard chromatographs.

The device could fit easily into the hand-held sensors familiarly referred to as labs-on-a-chip and aid in detecting terrorist attacks by near-instantaneously concentrating classes of suspect proteins for immediate analysis.

“Our methods make proteins very obedient,” says Dale. “They hang on or let go as we tell them, and they don’t denature [that is,

(Continued on page 4)

Telephone Pioneer Museum has Sandia connection



Labs’ AT&T-heritage memorabilia donated to unique museum. Story on page 12.

Pace VanDevender named VP of Science, Technology Div. 1000

Executive Staff Director Pace VanDevender has been appointed Vice President for Science, Technology, and Partnerships Div. 1000, effective immediately. Sandia President Paul Robinson made the announcement July 16.

Pace succeeds Al Romig, who Paul announced on June 24 would become VP for National Security and Arms Control Div. 5000, succeeding Dave Nokes.

Pace, a physicist, has been at Sandia since 1974. A long-time Director of Pulsed Power Sci-

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Student interns are familiar part of Sandia’s summer environment

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Child development centers now enrolling infants, children

What's what

Two wrongs don't make a right, but they do make a funny story – in spite of the technical incorrectness of it all.

When the Emergency Operations Center was activated recently, a very conscientious Sandian assigned to respond when the EOC calls was called on his office phone by a colleague and asked to come to the EOC to help with a situation. Moments after arriving, still scanning information rapidly to learn the nature of the emergency and wondering why his pager hadn't alerted him, something beeped. Instinctively he reached for the pager clipped to his belt. But, no pager. He quickly slapped at his shirt pocket and confirmed – to his flustered, embarrassed consternation – the very forbidden presence of his personal cell phone in the EOC sanctum sanctorum.

Busted and cringing inwardly at the thought of the security infraction notice certain to come, he mumbled an apology and excused himself to outside the glass-encased EOC nerve center, fumbling to answer the phone.

It was his wife calling to tell him he had forgotten to clip on his pager before leaving home that morning, and to dutifully let him know that it was beeping and that she thought he'd want to know.

* * *

Will the folks east of the Appalachians ever realize that New Mexico's part of the US? A colleague's 17-year-old daughter wonders.

She was in the Washington area not long ago, attending the DC/New York City-based Global Young Leaders Conference and had had the usual lively exchanges that youngsters have about life, expectations, home, families, school, hotties, and other stuff. The group included kids from Mexico, Netherlands Antilles, and some European countries, in addition to our New Mexican and a young woman from New Jersey.

During one session, the instructor asked, "Is there anyone here from the United States?" Firing her hand into the air, the perky New Jerseyite chirped, "Only me!"

* * *

Last week, some of us in a number of buildings around the 800/802 area had a couple of days of intermittent phone problems. Our very responsive phone service folks quickly discovered that the problem was caused by water seepage into a large cable in a manhole just north of Bldg. 802.

And as soon as they discovered the cause, they e-mailed all of us and told us about it. They said they'd have our service restored as soon as possible. And they invited anyone still having trouble to call 'em up and let 'em know.

* * *

I don't know if Tom Hinkebein (6118) got caught up, but he certainly was honest with an e-mail autoreply message last month: "I am currently hopelessly behind in my e-mail. Please call (505) 844-6985 if you would like to talk."

About the only improvement I can think of would read: "I'm hopelessly behind on e-mail and answering phone calls. Don't even try to contact me unless you see large amounts of water running out from under my building, dark smoke coming from the top of it, or armed, masked people converging on it."

– Howard Kercheval (844-7842, MS 0165, hckerch@sandia.gov)

Pace VanDevender

(Continued from page 1)

ences, he has since held a variety of other Director positions, most recently Director of Executive Staff. Before that he was Chief Information Officer. He has also been the Director of the Strategic Sciences Center, the National Industrial Alliance Center, and the Corporate Communications Center.

A native of Jackson, Miss., Pace holds three degrees in physics, a BA from Vanderbilt University, an MA from Dartmouth College, and a PhD from Imperial College, University of London.



PACE VANDEVENDER

After coming to Sandia out of graduate school, he became a division supervisor in 1978, manager of the Fusion Department in 1982, and Director of Pulsed Power Sciences in 1984. In the latter position, which he held into the 1990s, he oversaw Sandia's pulsed power R&D, inertial confinement fusion research, nuclear weapons effects simulations, directed energy weapons R&D, and commercial applications of pulsed power.

In 1992, Pace received DOE's prestigious E.O. Lawrence Award, "for his outstanding contributions to the generation of pulsed power," becoming only the fifth Sandian to receive that award. (Gus Simmons, Tom Picraux, Gordon Osbourn, and Tom Cook were the others.)

This past year he was named a Fellow of the American Association for the Advancement of Science. He is also a Fellow of the American Physical Society and a Senior Member of the Institute of Electrical and Electronics Engineers.

Pace was on technology transfer leave from Sandia from 1996-1998, as President of the Prosperity Institute, providing Prosperity Games (war games for business-government-university partnerships) to corporations for executive strategy and leadership development. He returned in February 1998 to become Director of the Strategic Sciences Center.

Lab News can now be recycled at Sandia

Contrary to the note on the "RECYCLE WHITE PAPER ONLY" labels currently found on the white paper recycling bins and totes around the Labs, it is now possible, even preferable, to recycle the *Sandia Lab News* with the white paper.

Prior to the May 30, 2003, issue (Vol. 55, No. 11) the *Lab News* was printed on newsprint, a contaminant to the white paper recycle stream; since that issue, a higher quality paper stock has replaced newsprint. The cautionary labels on all white paper recycle bins and totes distributed in the future will have the example of the *Sandia Lab News* lined out so as not to waste a few thousand high quality labels.

Please do not confuse *Lockheed Martin Today* with the *Sandia Lab News*. The Lockheed Martin newspaper is printed on coated paper that cannot be recycled with the white paper and must be removed by hand at the Solid Waste Transfer Facility. Questions to David Castillo (3124), 284-4192.

Employee death

Jeffrey Wilcoxon of Analog Design Dept. 5735 died June 28 after a heart attack.

He was 48 years old. Jeff was a Technical Manager and had been at Sandia since 1976.

He is survived by son Eric, daughter Jessica, and his mother, Lois Wilcoxon.



JEFFREY WILCOXEN

Sandia LabNews

Sandia National Laboratories

<http://www.sandia.gov/LabNews>

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Livermore, California 94550-0969

Tonopah, Nevada • Nevada Test Site • Amarillo, Texas •

Carlsbad, New Mexico • Washington, D.C.

Sandia National Laboratories is a multiprogram laboratory operated by Sandia Corporation, a subsidiary of Lockheed Martin Corporation and a prime contractor to the US Department of Energy.

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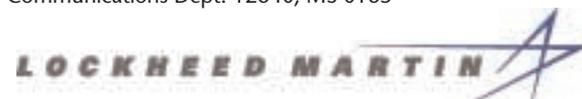
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Lab News fax **505/844-0645**

Classified ads **505/844-4902**

Published on alternate Fridays by Media Relations and Communications Dept. 12640, MS 0165



Your thoughts, please . . .

To PowerPoint or not to PowerPoint?

PowerPoint presentations are, it seems, everywhere. In the classroom. In the boardroom. At professional conferences of all sorts.

A Sandian probably is receiving or giving a PowerPoint presentation every second of every workday.

PowerPoint, as a mode of communication, also has entered academia, not just as a tool, but as a subject of study. There is, for instance, Edward Tufte's essay "The Cognitive Style of PowerPoint."

A public relations guru during a speech several years ago in Albuquerque called PowerPoint one of the worst things that has happened to communications in a long time.

Others tout it as a boon to communication, to learning, to just about anything.

Now, "Your Thoughts, Please," the intranet-based employee comment program is asking for your impressions of how Sandians use PowerPoint.

To response go to the NewsCenter (<http://www-irrn.sandia.gov/newscenter/news-frames.html>). From there simply click on its link located near the top left of the page.

Responses to this question are being accepted through Aug. 22.

Also available at "Your Thoughts, Please" are employee responses to the previous question. It invited employees to offer a quick S.W.O.T. analysis of the Labs. S.W.O.T. stands for "Strengths," "Weaknesses," "Opportunities," and "Threats."

Public health officials, Sandia test Labs-designed antiterrorism planning tool in mock anthrax attack

By Nancy Garcia

Two dozen officials from Alameda County and environs teamed up with Sandia recently to practice responding to a mock anthrax attack using a response and planning tool designed by Sandia.

Participants in the exercise included the Alameda County Public Health Department (ACPHD), Contra Costa Health Services, the City of Berkeley Public Health Department, Highland Hospital, Kaiser Oakland Hospital, California Department of Health Services (DHS), Alameda County Office of Emergency Services, and the Federal Bureau of Investigation.

"The scenario, while vast in scale, was quite realistic," says Dr. Tony Iton, who participated in the exercise that evaluated the county's new 300-page bioterrorism plan. Dr. Iton is the health officer at ACPHD. "The exercise re-emphasized that the core components of bioterrorism response are surveillance, disease control, communication, and coordination," he says. "The Sandia folks have developed an excellent tool to help local public health agencies test-drive their response plans."

Iton says he was pleased to work with such a large collection of bioterrorism experts. "The benefits of the planning process are in establishing relationships and understanding what our various roles are," he says.

It was far more helpful than handing out business cards to collaborative agencies, agrees Jim Morrissey, the disaster coordinator with the Emergency Medical Services division of ACPHD.

"It was much better to actually meet the related disaster staff in-person and to work with them side-by-side to provide a more efficient, interagency effort with the hopes of then having this become standard in the real events," he says. "I feel this was a tremendous opportunity to not only test out the Sandia system with them, but also to try our combined skills and expertise in a particular type of simulated event."

In a disaster situation, ACPHD coordinates the county-wide medical response, shifting around county staff and resources to stabilize the situation. Sandia and ACPHD got together to test ACPHD's readiness to respond to a bioterrorism attack after ACPHD learned about Sandia's decision-analysis computer program.

For this six-hour drill, participants gathered in Sandia's Visualization Design Center, where information was displayed and updated via maps, charts, and text on three large screens lining the walls. Representatives from Sandia's Weapons of Mass Destruction-Decision Analysis Center (WMD-DAC) described an increasingly severe, simulated scenario involving a release of a few ounces of highly infectious, weapon-grade



ONLY A TEST — Two dozen participants took part in the emergency simulation at Sandia's Visualization Design Center. (Photos by Bud Pelletier)

anthrax at the Berkeley Marina.

Participants were asked to imagine that it was January, the weather was cloudy, the country had recently gone from "code orange" to "code red," and there appeared to be a spike in the number of respiratory illnesses in Alameda County. As they made decisions, the outcome of the simulation changed to reflect their choices.

"This is the first exercise I've been in that actually feels like the real thing to me because we were forced to make some decisions," says Dr. Poki Namkung, the Public Health Officer for the City of Berkeley.

Divided into groups of four to six people, participants had about ten minutes to decide how to respond to the change in alert status and discuss it in their groups. Decisions included asking hospitals to be on the alert for unusual symptoms and reschedule elective surgeries, increasing security in Alameda County, and getting an inventory of prophylactic drugs.

Then participants were told the situation had worsened. The "spike" turned into 35 cases of suspected inhalation anthrax. The groups stepped up their response: treating the affected individuals with antibiotics, investigating the cases, conducting press briefings, and communicating with the Centers for Disease Control and Prevention (CDC) and state DHS.

During the next 24 hours modeled in the scenario — requiring just a few minutes of computer simulation time — the situation got even worse. The 35 cases were confirmed as anthrax, and 613 more "suspect" cases were reported. In talking again, the groups decided to close all schools in Alameda County and set up clinics to administer prophylactic drugs, while holding more press briefings and

Sandia California News

issuing news advisories.

By the 11th day of the simulated attack, roughly half of the population exposed to the anthrax had died — but those deaths would be reduced significantly if there had been earlier detection and antibiotic distribution, the public health experts concluded.

"It was an excellent opportunity to come together and to participate in an experience like this that we hope will not be real, but may be one day," says Linda Frank of the Alameda County Communicable Disease Department.

ACPHD was not the only group to benefit from the experience. "I feel like we definitely learned a lot," says Advanced Technologies Dept. 8101 Manager Howard Hirano, who arranged the visit. "And that's the point of WMD-DAC — to provide a learning tool for decision-makers who are tasked with protecting us and responding to potentially catastrophic events."

Initially conceived in early 2001, the WMD-DAC bioterrorism simulation engages the perspectives of many decision-makers as they seek to deal with a complex event that unfolds over days, often having to make decisions along the way with incomplete information. Sandia researchers began with the premise that it was only a matter of time until the US suffered a terrorist attack, and it would be wise to prepare for one.

There are several ongoing enhancements to the models. Epidemiological work by Los Alamos National Laboratory and analysis for atmospheric releases created by scientists at Lawrence Livermore National Laboratory are being incorporated. A nuclear terror scenario has also been developed. Another feature in the works will allow health officials to track the spread of diseases, such as smallpox, that spread person-to-person. Recent news coverage of the rapid worldwide spread of SARS underscores the importance of this capability.

In addition to the Bay Area models — including Alameda/Contra Costa County as well as San Francisco — another model involving a simulated bioterrorism attack on the 1.9 million residents of New Mexico has been completed. The CDC in Atlanta has also requested a presentation on the model this summer.



SCRAMBLING — Ricky Tam (8947, left) confers with participants at the emergency services table during the exercise.

Protein

(Continued from page 1)

they stay healthy] even after 24 hours." The proteins are thus available for more extensive analysis than conventional separation methods ordinarily permit.

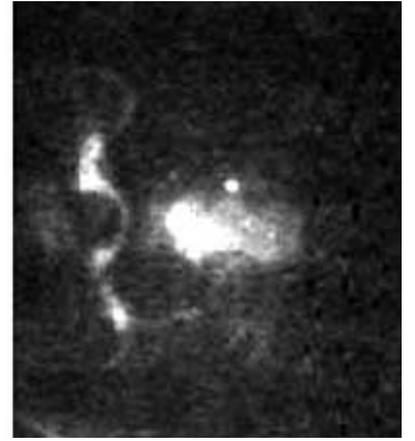
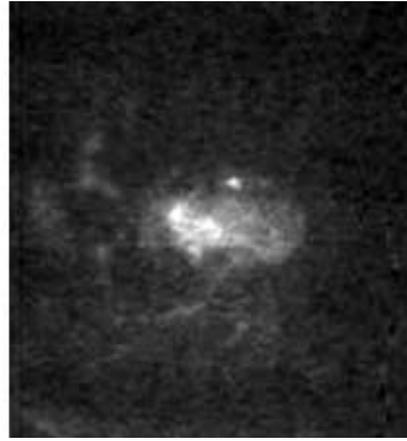
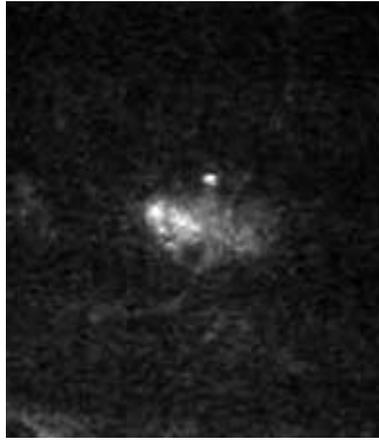
The device works by sending minute currents of electricity for microseconds through the gold crosspieces called heat lines to warm a four-nanometer-thick polymer film. The film, called poly(NIPAM), responds to heat by changing from a hydrophilic (water-loving) to a hydrophobic (water-hating) state. The water-hating state makes it easy for the film to adsorb proteins passing over it in an aqueous solution, while the cooler hydrophilic state means the proteins will be outcompeted by water molecules and be released in a natural cleansing action.

Furthermore, because smaller proteins adsorb faster, a brief pulse of electric current is all that's needed to separate them from solution. The solution can then be disposed of, leaving only the small proteins. If large proteins are of interest, the runoff becomes valuable and the smaller proteins can then be disposed of by later letting the heating current die down. The small proteins release and can be disposed of by draining this solution. There is no fouling.

Lengthier application of current shows that because of their larger surface areas, larger proteins tend to displace the smaller, first-arriving proteins and attach to the polymer. Draining the solution then removes the small proteins.

Thus the device acts not only as a fast, low-power preconcentrator of proteins, it can be used to change the ratio of large to small proteins as desired for easier analysis in specific applications.

"It's also a good anti-fouling system. Proteins stick only where we tell them to."



EMERGING FROM THE FIFTH DIMENSION? — Well, the fourth, anyway. The series of increasingly bright photomicrographs demonstrate the desorption of fluorescently labelled protein after the heater line was turned off at 0.0, 0.8 and 1.2 seconds.

For further microanalysis, Bruce says, "You could envision different streams perpendicularly across our fluid-carrying channel. We could release across any given channel, then further separate proteins based on charge or size."

A spin-off application that seems possible to the research team would be to use the method to grab antigens in saliva or blood serum that would indicate a disease in progress. "Think of the use for GI Joe in the field," says Bruce. "We'll insert antibodies specific to particular diseases. Turn on the battery, raise the heat, and trap the antibodies to create a film. Then see if this film interacts with a blood serum or saliva sample. No? Turn off the heat, release the antibody, enter another antibody, and retry."

Another difference between the new method and standard chromatography columns is that the latter use the same separation materials to get the same results every time. The Sandia approach enables researchers to program changes into the characteristics of the "column" by varying the temperature of the heat lines, as well as the length of time they are hot, along the channel through which the protein-carrying liquid passes. This enables researchers to vary the final spacing between protein classes of different size or weight to provide clearer outcomes.

"Also," says Bruce, "we can work with smaller

volume and very small quantities of protein."

Finally, he says, "It's also a good antifouling system. Proteins stick only where we tell them to."

Currently, the researchers are working at the proof-of-concept phase, and have shown that proteins adhere, release, and displace one another on squares of heated poly(NIPAM) — formally, poly(N-isopropyl acrylamide). One goal of the research is to have a 3-D tube packed with coated micropebbles that would increase sensitivity by creating a 1,000-square-meter-per-gram surface area to analyze larger volumes of intake material. This could be integrated onto a microchip and heated with a larger resistive heater, or by an infrared laser.

While the device is envisioned to function near the front-end of an analysis unit, a still-prior device would be needed to provide proteins, either by opening cells to make their proteins available for analysis, providing fluids from humans, or by collecting protein from the environment.

"Currently, we're working with a group at Sandia/California led by Bryan Kirby (8358) to make the technology useful by building it into their integrated platform," Dale says.

Sandia has applied for a patent for the work, which is funded by DOE's Division of Materials Sciences and Engineering, Office of Basic Energy Sciences, and by an LDRD grand challenge for Molecularly Integrated Microsystems.

Force Development: Labs, Air Force finalize plans for Sandia Nuclear Weapons Fellowship program



USAF Brig. Gen. Robert Smolen (left), Director of Nuclear and Counterproliferation (AF/XON), Office of the Deputy Chief of Staff for Air and Space Operations, met recently with Sandia VP John Stichman (right) to finalize plans for the new Sandia Nuclear Weapons Fellowship program. The program is a cooperative effort between the Air Force and Sandia. AF/XON establishes Air Force policy and strategy for nuclear weapon systems, has oversight of nuclear operations and requirements, and manages Air Force arms control activities. It also is the Air Force focal point for activities to counter the proliferation of chemical, biological, radiological, nuclear, and explosive weapons and materials.

The new Sandia Fellowship is a rigorous career education program designed to prepare future nuclear leaders and maintain a corps of expertise within the Air Force to ensure the US remains the preeminent nuclear superpower.

The Sandia Fellowship stems out of USAF Chief of Staff Gen. John Jumper's emphasis on the importance of professional military education and advanced academic degrees. It is a collaborative effort of AF/XON, the Air Force Office of Personnel, and Sandia.

The Sandia Fellowship is structured to advance Force Development in three areas: First, it will provide Air Force officers in nuclear-related career fields an in-depth level of technical expertise; second, Air Force Fellows will receive intermediate or senior level professional military educational credit; third, the program is designed with sufficient flexibility to allow Air Force Fellows to earn an advanced academic degree to benefit the Air Force and the individual.

Air Force Fellows are competitively selected from throughout the Air Force and participate in the Sandia Weapons Intern Program. Air Force Fellows will closely interact with the Air Force Nuclear Weapon and Counterproliferation Agency, AF/XON's field operation agency, located at Kirtland AFB. The program requires approximately 21 months to complete and after graduation the Air Force Fellows are assigned to key nuclear weapon system positions throughout the Department of Defense.

The first four Air Force Fellows will be selected by the Air Force in September.

— Bill Murphy

R&D 100 winners

(Continued from page 1)

ing decades, entries that later became household names include Polacolor film (1963), the flashcube (1965), the automated teller machine (1973), the halogen lamp (1974), the fax machine (1975), the liquid crystal display (1980), the printer (1986), the Kodak Photo CD (1991), the Nicoderm antismoking patch (1992), Taxol anti-cancer drug (1993), lab on a chip (1996), and HDTV (1998).

The sole criterion for winning, according to a description released by the magazine, "is demonstrable technological significance compared with competing products and technologies." Properties noted by judges include smaller size, faster speed, greater efficiency, and "higher environmental consciousness."

Electro-optics, high-tech materials, and energy innovation are staples of the R&D 100 Awards, but the magazine has responded to new technologies by creating additional categories. Winners have been chosen in the fields of analytical instruments and processes, electronics, testing and measurement, software, environmental technology, and advanced biomedical devices and systems.

Winners will be presented plaques at a formal banquet in October at Chicago's Navy Pier.

Brief descriptions of the seven winning Sandia technologies follow:

SnifferStar

It's hard enough to keep track of where you are on a battlefield. Imagine trying to keep track of what you are breathing.

Helping US forces of the future may be an extremely lightweight mobile chemical sensor created by Doug Adkins with George Dulleck, Greg Frye-Mason, Pat Lewis, Richard Kottenstette, Edwin Heller, Ronald Manginell (all Sandians), and Clifford Megerle, formerly a Senior Technical Staff Member at Lockheed Martin.

SnifferStar™ mounts on a drone aircraft for remote surveillance of battlefield situations where suspect plumes or clouds are present. The detector's primary purpose is to save lives by warning soldiers that chemical weapons are present on a battlefield. Developed under a Shared Vision program with Lockheed Martin, the entire module weighs less than a golf ball, operates on less than 0.5 watts, and uses the wind generated by the motion of the craft to collect samples for analysis. SnifferStar is sensitive to both blister and nerve agents. It ignores common interferents and analyzes chemical warfare agents in 20 seconds.

Says Doug, "Such rapid analysis currently is not possible with any other package near this size."

The device also has possibilities for use in or near the ventilation systems of buildings, or, with addition of small pumps to force air into the device, on posts surrounding military bases.

— Neal Singer

Sandia R&D 100 Awards by year



Here are the number of R&D 100 awards Sandia has won or shared in recent years:

20037
20022
20013
20001
19993
19983
19978
19966
19951



RESEARCHER Kevin Krenz (8729) inspects components in the first-generation Extreme Ultraviolet Lithography tool. EUVL was one of seven R&D 100 awards won by Sandia in 2003. (Photo by Randy Montoya)

Congratulations to winners from Labs President Paul Robinson

I told a group recently that, ever since the physics advances of the 1930s and the Manhattan Project success that grew out of it, governments around the world pay much more attention to leading edge research and development. That need is what led to national labs, and one of our major functions is to participate

in leading edge technology creation, in order to be alert to how to apply new developments. This year's R&D 100 Awards testify to the success we and our sister labs are achieving in that quest. Congratulations to all of the alert Sandians who pushed the frontiers and created important applications.

Extreme Ultraviolet Lithography Full-field Step-Scan System

More than 50 Sandians and collaborators from Lawrence Livermore (LLNL) and Lawrence Berkeley national laboratories were honored for this technological advance that will lead to dramatic improvements in the speed and memory of computer systems. They created the only system that can pattern full chip-size areas on silicon wafers with features as small as 50nm. It is the embodiment of a set of groundbreaking technologies that were considered by many to be impossible as recently as a few years ago. Commercialization of this breakthrough will allow advances in microelectronics to continue into the next decade.

In addition to the national laboratory team, the award is also being given jointly to Northrop Grumman Space Technology/Cutting Edge Optonics. The work was done in partnership with an industrial consortium comprising Intel, Motorola, AMD, Infineon, IBM, and Micron. Intel ordered the first production-level instrument based on this technology last year.

— Nancy Garcia

ETO: Mitigating electrical network problems

Lightning strikes, equipment failures, or other anomalies in electric powered transmission systems can cause brown-outs or even network failures. But a fast-response semiconductor device developed under the direction of Stan Atcitty

(2522) allows a utility to rapidly convert energy stored in a DC device into AC power and minimize the negative effects of such interruptions on electrical devices.

Under the auspices of the DOE Energy Storage Systems Program, Stan led researchers at Virginia Tech in Blacksburg, Va., in the development of the advanced semiconductor unit. Called an ETO (emitter turn-off thyristor), the three-terminal semiconductor device is similar to a MOSFET (metal oxide semiconductor/field effect transistor) but capable of switching greater power at high frequencies. The ETO, rated at 4000A and 4500V, can switch power at 1-3 kHz.

"This component could become a critical part of inverters, motor controllers, and many other power electronics systems that require medium voltage and high-current switches," says Stan.

Another possible use for the device is in the US Navy's All-Electric Ship Initiative. Says Stan, "Once you mention an all-electric ship, you need high-power switching devices like the ETO to manage power flow on a ship."

The DOE program that supported the ETO development is managed at Sandia by Energy and Transportation Security Center 6200.

The ETO R&D 100 application was a joint entry with Solitronics (a Blacksburg small business marketing the ETO), Virginia Tech (ETO inventor), Sandia (which supported the development of the ETO from a concept to an actual product suitable for utility energy storage applications), and the American Competitiveness Institute in Philadelphia (which assisted the team with manufacturing engineering and prototype production of the device).

— Neal Singer

(Continued on next page)

R&D 100 winners

(Continued from preceding page)

LEAMS (Low Emissions Atmospheric Metering Separator)

The Low Emissions Atmospheric Metering Separator is a family of atmospheric geothermal separators used in the development of geothermal power. The primary function of the LEAMS is to safely contain and clean the atmospheric vented steam of polluting solids, liquids, and noxious gasses. This system is designed to be environmentally friendly, intrinsically safe, and relatively easy to transport and assemble. LEAMS has a wide operating range and can be used in drilling, well testing, and geothermal power plant start-up.

The LEAMS technology was supported by work done by Allan Sattler (6113), and was developed by Two-Phase Engineering and Research, Inc., Santa Rosa, Calif. Most fabrication was accomplished by Drill Cool Systems, Inc., Bakersfield, Calif. Allan was in charge of Sandia/DOE support of the project. He provided field and instrumentation support for a separator field test at a large geothermal well in California. Allan consulted, collaborated, and was in constant contact with the designer and fabricator, especially during the design and fabrication phases of most LEAMS units. He and his Sandia colleagues also provided much of the documentation for the project.

"I am delighted that the talent, creativity, innovation, and competency of these two firms was formally recognized, and I am honored to be associated with them and the technology developed," says Allan. "It provides a critical new capability to the entire geothermal industry."

—Michael Padilla

Acoustic Telemetry Technology

Acoustic telemetry technology, developed at Sandia in cooperation with Extreme Engineering Ltd. of Calgary, Alberta, and with support from DOE, represents the fulfillment of an oil industry quest that goes back to the 1940s.

The problem: As oil and gas wells have gone deeper and deeper, the need for better communication between the driller and the drill bit has

become more critical.

Standing next to a drilling rig, you see a simple well head; beneath your feet, well-casing strings, production tubing, and other drilling equipment extend miles beneath you, often reaching "out" more than "down." Steering the bit at the end of this serpentine connection has become more and more difficult.

Existing MWD (measurement while drilling) communication methods, based on mud-pulse techniques, were revolutionary when introduced in the early 1980s. But mud-pulse is slow — much, much slower than the first-generation telephone modems you used at home. Thus, a process that represented a breakthrough a generation ago has become a bottleneck to the precision drilling needs of the 21st century.

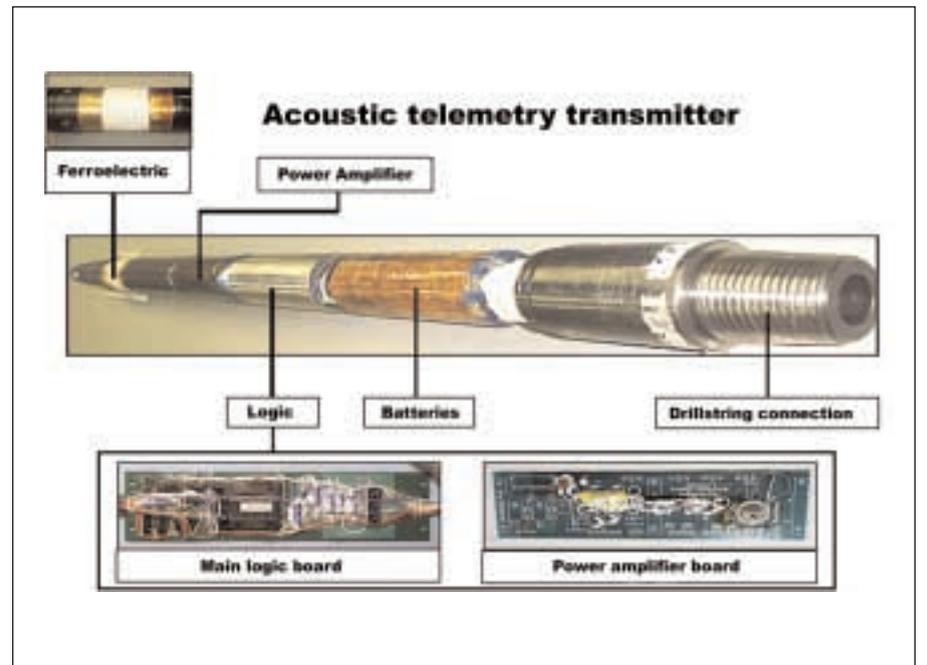
Acoustic telemetry technology uses the well-drilling tubing as the data transmission medium and sound waves as the data carrier. Among the advantages compared to existing techniques: a 10-fold improvement in data rates and no blocking of the fluid flow path.

Doug Drumheller (6211), Sandia project lead for the technology, says that although the acoustic telemetry concept has been around for more than 50 years, the industry's trial-and-error approach to solving the technical problems involved led nowhere.

"We applied some science to the problem," Doug says. "We approached the problem carefully over a long period of time."

Doug praises the contribution Extreme Engineering has made to the effort.

"They are licensees of our technology," he notes. "They've jumped into this field with both



feet. They've contributed to the design of hardware, the intellectual property, and the field-testing of the prototype devices. It's rare to find a company that steps up to the tasks as well as Extreme."

—Bill Murphy

MEMS-Based Adaptive Optics Phoropter

Sandians Steve Eisenbies and Steve Haney (both 8731) contributed to the opto-mechanical design and integration of a compact, transportable adaptive optics system that expands upon traditional devices currently used in optometrists' offices. In addition to determining correction needed for near-sightedness or far-sightedness and astigmatism, it also determines correction needed for high-order aberrations that can interfere with night vision and can provide a preview of correction to a patient. The effects of aberrations can be compared to distortions seen in a pool due to ripples on the surface. Diminished night vision or a perception of "halos" can sometimes result from aberrations introduced during laser eye surgery.

The Adaptive Optics Phoropter is a system that uses MEMS-based deformable mirror technology to correct wavefront aberrations in the eye. It combines technologies from astronomy and micromachining to advance the study and treatment of retinal diseases. Applications for the tool include generation of improved prescriptions for custom contact lenses or laser eye surgery, as well as high-resolution retinal imaging. The award is shared by LLNL, which led the project, Sandia, the University of Rochester, Wavefront Sciences, Boston Micromachines Corp., and Bausch & Lomb.

—Nancy Garcia

Isolated Cast-in-Place Microvalves

Brian Kirby (8358), Tim Shepodd (8722), and David Reichmuth (8358) were honored for creating microvalves that allow fluids to be shuttled as easily in microfluidic chips as they are on a traditional laboratory benchtop.

For the first time, these valves enable micro-scale systems to combine high-voltage and high-pressure analytical or synthetic techniques. Previous micro-scale systems could not effectively control both electrokinetic and high-pressure hydraulic flow. The new valves are commercially applicable to miniaturization of techniques crucial to drug discovery and evaluation in the pharmaceutical industry — in particular, gradient liquid chromatography analysis.

The polymer valves are photopatterned in seconds and moved by pressure to isolate and manipulate fluids in channels. Different analytes can be shuttled from one place to another on a chip where measurements can be made, such as identification of a species or its concentration. The results can then be used to select a path for additional analysis. Miniaturization advantages include greater process speeds using minuscule volumes of reagents, which saves money and minimizes impact to the environment.

—Nancy Garcia

Solar racers dash through Albuquerque



ADMIRING GLANCES — Visitors to the University of New Mexico Pit parking lot last weekend got a look at a number of state-of-the-art solar cars like this one at a stopover in the 2003 American Solar Challenge. The University of Missouri-Rolla solar car, shown here, was in first place during the stopover in competition with some 30 other university solar-power vehicles. Sandia, UNM, and several local groups sponsored the two-day stopover for the race, which began at Chicago's Museum of Science and Industry July 13 and was scheduled to finish July 23 in Claremont, Calif. The race was following Route 66 as much as possible, with checkpoints along the way. Sandia's Jeannette Moore (2565) coordinated the Labs' participation in the program. (Photo by Bill Doty)

Win-win: Sandia student interns gain real-world experience, help the Labs at same time

Summer brings 850 interns to the Labs; 450 stay year-round

By Teresa Montoya

When looking to hire student interns, Sandia seeks those with excellent academic credentials and the ability to contribute to Sandia's success.

The Student Internship Program (SIP) provides students with valuable work experience and hands-on training using state-of-the-art equipment. SIP is known for its diverse program and competitive pay. Between 80 and 90 percent of students are working in the same field they are studying at school. This program gives students an opportunity to work with some of the best scientists in the world.

There are about 850 students during the summer and 450 that stay at Sandia year-round. To qualify for the Student Internship Program, a full-time student must be enrolled at an accredited university or college. Sandia also hires high school students and has a co-op program for students who do research to finish their degree. A co-op student is allowed to go to school and conduct research at Sandia.

William Counts (1834) is a 28-year-old co-op student who loves to play soccer in his spare time. "Soccer will always be my first love — after science, of course," says William. He has worked at Sandia three semesters. He attends Georgia Tech. With a major in materials science and engineering, the work he does at Sandia directly ties in with what he studies at school. He attends classes and then comes to Sandia to do the research part of his PhD.

"It is a great program for PhD students," William says. "You get experience outside of academia, get paid better, and have access to more resources." He is in charge of writing computer codes that will be used with Sandia's finite element package. "My code is a crystal plasticity material model that will predict how metals will deform under a given load."

"The SIP at Sandia helps prepare students for the real working world after college," says William. "For students coming to the Labs from out-of-state for the first time, it is a great opportunity to explore the Southwest and New Mexico."

Matthew Burris (1769), 21, is also a co-op student. His hobbies include designing and constructing electronic projects and building computers. Matthew has worked at Sandia for five months. He attends Kettering University. Like William, Matthew is directly working in the field he is studying, electrical engineering. He is completing two major projects: fabricating, testing, and characterizing a new high-power frequency MEMS amplifier unit, and helping make training videos related to the characterization of MEMS devices.

"I believe my work experience at Sandia will prove to be invaluable, both for my education and when I am looking for a job," says Matthew. He plans on pursuing a masters and a PhD in electrical engineering after graduating from Kettering. He has hopes for a career at Sandia.

Rebecca Coones (5735) first started working at Sandia in 1999. She attends the University of New Mexico (UNM), majoring in mechanical engineering. Working with the ProEngineer software package, she creates drawings and models, tests parts for continuity, and maintains flow charts.

"Working at Sandia is a real-world experience, and what could be better than that," says Rebecca. Rebecca wasn't always classified as a technical student. When she started at Sandia, she worked in the Media Relations and Protocol groups as a clerical student. Although that did not directly fall in the field she wanted to go into, she says it was good experience.

"It was an awesome job because it exposed me to different aspects of Sandia that I probably would have never seen otherwise," she says.

Amanda Constancia (10503), a UNM student, is majoring in accounting and has the opportunity to work in Accounts Payable for the



STUDENTS WORKING AT SANDIA — Student intern Rebecca Coones, right, first started working at Sandia in 1999. She attends the University of New Mexico (UNM), majoring in mechanical engineering. To the left is Leslie Vonderheide, who also attends UNM. She is majoring in electrical engineering. (Photo by Randy Montoya)

"The SIP at Sandia helps prepare students for the real working world after college. For students coming to the Labs from out-of-state for the first time, it is a great opportunity to explore the Southwest and New Mexico."

summer. This is Amanda's first internship at the Labs, and she is looking forward to a learning experience. "I like the fact that I am able to work in an area that I am studying at school," says Amanda. "I think I might like to work at the Labs year-round."

These are just four examples of what SIP is doing for students. Just imagine, there are around 846 more students with stories just like this. SIP also provides fun activities during the summer so that fellow students can meet one another, and maybe make a friendship that will

last a lifetime.

Teresa Montoya is an intern in Media Relations & Communications Dept. 12640.

For more information

For more information about the Student Internship Programs contact Vickie Brown (3554) at 844-1374 or the SIP web site at <http://www-irn.sandia.gov/HR/Staffing/sip/sip.htm>.

Feedback

Q: There have been a number of articles about Sandians wearing their badges off base. While I have no argument with the policy, the reasoning behind it seems flawed. The Sandia Daily News reports that employees have been noticed outside the base with badges or lanyards — or both — clearly visible and that could mark you as a target for an adversary. We were also reminded that your badge and lanyard should be removed and kept out of view while you're off the base.

If being marked as a Sandian makes us an easy target, then why do our vehicles have a fixed external sticker that clearly identifies us as Sandians? Anyone walking around a grocery store parking lot can identify which cars belong to Sandians (or their families)

and wait to see who drives the car away.

If targeting is the primary reason not to wear your badge, then shouldn't we all have removable hangtags for base access rather than fixed stickers? If targeting is only one of many reasons not to wear your badge, then please stop using it as a red herring and describe the other reasons for the policy.

A: Recent Operations Security (OPSEC) messages in the Sandia Daily News (SDN) were focused on protecting your badge and your identity concerning your working relationship with Sandia while outside Sandia or KAFB premises. These messages were created during the Heightened Security Measures in an attempt to prevent our employees from being targeted by adversaries for information and to protect our employees from any possible harmful events. — Al West (3100)

Childhood centers now enrolling infants, children

La Luz, Shándiín stress security, safety for children

By Michael Padilla

La Luz Early Childhood Center and Shándiín Child Development Center are currently enrolling children of Sandia employees.

Both centers offer children of Sandia employees high-quality, safe, and secure care. The centers focus on family-oriented environments and a relaxed atmosphere for children and infants. Both centers are 501c3 nonprofit organizations.

Larry Clevenger, Director of Benefits and Health Services (3300), says the centers are an excellent choice for employees who are in the process of looking for childcare.

"The two centers provide exceptional service," Larry says. "These centers share an enduring focus on program quality, and their varied locations provide complementary childcare services intended to meet the diverse needs of our employees and local community."

La Luz focuses on building relationships with families and children, small class sizes, and lower ratios. The center provides care and education for infants 6 weeks old through children 5 years old in a homelike facility. The center features a rotational staffing system that keeps children with their caregiver/teacher from the age of



READING TIME — Child development teacher Larissa Garcia reads to a group of children at Shándiín. La Luz and Shándiín are accepting applications for children of Sandia employees for the upcoming months.

(Photos by Randy Montoya)

6 weeks to 3 years old. Each teaching team moves up with its group to the next room each year in August. When a group of children move to the preschool program, its teaching team moves back to the infant room.

Janet Stewart, La Luz director, says the center is open to all different cultures and traditions, which is reflected in the student body as well as the staff. "We really want to support and welcome all families," she says. "It's important that we bring 'home' to the center."

La Luz, which has been in operation since August 2002, is managed by the Albuquerque Country Day School (serving children from pre-school through upper school; <http://www.acds.us>) and reports to the SSTPS (Sandia Science & Technology Park) Inc. Board of Directors. The cost varies from age to age of the child.

La Luz has 85 kids enrolled for next month with a full-time equivalency (FTE) of 58. The center can provide care to up to 104 FTEs. It offers flexible part-time in addition to full-time schedules.

Stewart says one challenge of running the center has been to keep up with the rapid growth of the center and to make sure that the staff is ready for change.

Shándiín, Navajo for "sunshine," focuses on creating a family atmosphere. The center accepts children ages 6 weeks old through pre-kindergarten whose parents are employees of federal agencies and their contractors. It has been operating since August of 1995.



PLAY TIME — Child development teacher Charlotte Little (right) spends time with children at Shándiín.

Desiree Flores, Shándiín director, says, "The children are transitioned to the next room based on their developmental readiness. Each of our classrooms implements an age-appropriate learning curriculum. Each classroom's learning curriculum offers new challenges for each of the children."

The center's mission is to provide quality childcare, education, and nutritional services to working families. The center, managed and operated by a nonprofit all-volunteer board of directors, is dedicated to provide a caring, stimulating environment in which the faculty and staff facilitate a child's love of learning while helping children achieve their individual cognitive, social, emotional, and physical potentials.

"Our family involvement is astonishing," Flores says. "It is not unusual to see parents drop by for lunch or while they are on a break just to visit their little ones. Parents will walk in, chat with their child's teacher, and participate with the children's activities."

Shándiín currently has 69 children enrolled and an FTE of 57 and is licensed for a maximum of 115. The cost varies based on the child's age. The center offers discounts for siblings and faculty as well as accepting New Mexico Child Care Assistance.

Something new at Shándiín is "Parent's Night Out." Parents have an opportunity to leave their children at the center on a Friday night or Saturday afternoon as an extended care option.

Safety first

Safety and security are major concerns at both childhood centers. Parents are responsible for checking children in and out of the center and keypads are used to control access. All guests are required to check in at the front offices and are always escorted. The centers use cameras and monitors to keep aware of the activity in the centers.

Location, location

La Luz ECC is located in the Sandia Laboratory Federal Credit Union branch office at 1301 Britt Street S.E. in the Sandia Science & Technology Park. For more information on La Luz, see <http://www.laluzeccl.org/> or call 237-7237.

Shándiín is located at Pennsylvania and M Streets (Bldg. 20401). For more information about Shandiin, see its web site at <http://www.doeal.gov/>

APEX honors Lab News with Grand Award; Sandia communicators win 18 awards for excellence in annual competition

Sandia communicators have won one Grand Award and 18 Awards of Excellence in the 2003 APEX (Awards for Publications Excellence) national competition.

The Sandia Lab News staff won a Grand Award for Magapapers & Newspapers. (All staff members are listed on the masthead on page 2.) There was only one other Grand Award winner in this category in the entire competition. The Lab News also received the same Grand Award in 1996 and 1999. In 2002 the Lab News staff won a Grand Award in the campaigns category for its seven issues about Sandia responses to the September 11 attacks. In 2001, Bill Murphy of the Lab News won a Grand Award for that year's annual Labs Accomplishments issue.

The APEX competition is conducted by Communications Concepts Inc., Springfield, Va. The awards honor excellence in editorial content, graphic design, and the ability to achieve overall communications excellence. APEX Grand Awards

honor the outstanding works in each main category, APEX Awards of Excellence recognize exceptional entries in each of the subcategories.

"With close to 5,000 entries, competition was exceptionally intense," says John De Lellis, one of the three APEX judges.

Four Sandians each won two APEX awards of excellence:

Iris Aboytes, who began writing occasional feature articles in the Lab News only a couple years ago, won one in the education & training writing category for her "Thunderbird Award Winners Soar Higher Than Ever" (May 3, 2002) and one in the how-to writing category for "In the Midst of a Storm . . . Sandia's Vacation Donation Plan Can Make a Big Difference" (March 8, 2002).

Bill Murphy won in the one-of-a-kind publications — printed category for the Lab News Labs Accomplishments 2003 Special Issue, February 2003, and in the personality profiles category for

"Anne Van Arsdall, Tech Writer and Medievalist, Publishes Book about Medieval Medicine" (Sept. 20, 2002).

Randy Montoya won two awards for his photography. One is for his photo of Doug Adkins and the SnifferStar chemical monitor (cover of Labs Accomplishments 2003 special issue, February 2003; a similar version appears on page 1 of this issue) and one is for his photo spread on a retiree's vineyards and winery (Nov. 29, 2002). This is the eighth consecutive year Randy has won at least one APEX award.

Will Keener won two awards for publications, one for the "Sensing and Sensors" issue of Sandia Technology, in the magazines & journals — printed four color category; and one for "Environmental Report 2001 — Commitment to the Environment" in the special purpose brochures, manuals & reports category.

Here are other Sandia winners of APEX

(Continued on next page)

Local children experience 'Fun in the Sun' science days

Community Involvement takes science to community centers

By Iris Aboytes

Every picture tells a story. In this instance, the pictures tell stories of children being exposed to science and enjoying it. Sandia's Community Involvement Dept. 12650 has taken Sandia's "Fun in the Sun Science Days," to the community via community centers.

With the popularity of Family Science Nights at local elementary schools, Science Days was born. It is Sandia's way of keeping youngsters' minds energized and cultivated during the school-free summer months.

Twelve community centers are participating in this summer's "Fun in the Sun Science Days." The information on the eight experiments is now

available in Spanish so more children can be exposed to the fun part of science.

"These programs are amazing," says Mike DeWitte (12650), Deputy Director, Corporate Outreach. "Our team has been able to help youngsters get excited and



engaged in the wonders of science."

"It was awesome, the kids loved it," says Mario Armentariz, Westside Community Center. "You needed to be here to fully understand the impact on the kids. They could hardly wait to get home and show their parents."

By far the most popular experiment is the invincible balloon. As a skewer is passed through an inflated balloon and it does not pop, the children are amazed. Balloons are made of a thin sheet of rubber containing many long intertwined or cross-linked strands of polymer chains. The polymer chains at the nipple end and tie end of the balloon are not stretched as tightly as those at the sides of the balloon, thus allowing the skewer to push the polymer chains apart and enter the balloon without bursting it.

"The youth participants were skeptical at first of the program, but once the staff started explaining and demonstrating the project, they really got into it," says Nancy Kline, Bernalillo County Community Center Manager, Vista Grande Community Center. "Most of them asked us to keep their projects in the office for the rest of the day so that they would not be destroyed and actually remembered to take them home that evening without being reminded."

"Going out into the community and sharing science experiments with hundreds of youngsters is so gratifying," says Cheryl Garcia of Community Involvement Dept. 12650. "The look of awe in a child's face instantly reveals if we have done our job — introduced young and curious minds to the scientific world."



CHILDREN attending the Fun in the Sun Science Days look in amazement as a balloon retains its air despite a wooden skewer through it as part of an experiment.

(Photos by Randy Montoya)



CHERYL GARCIA of Sandia's Community Involvement Dept. 12650 conducts an experiment with children attending the Lab's Fun in the Sun summer camp.

Regina Gonzales receives Women of Color Emerald Honor

Regina Gonzales, a systems engineer in Product Realization Standards and Processes Dept. 2993, is the recipient of a Women of Color Emerald Honor awarded by Career Communications Group, Inc., publisher of *US Black Engineer & Information Technology* magazine, *Hispanic Engineer & Information Technology* magazine, and *Women of Color Conference Magazine*.

The award is for most promising technologist/scientist.

The award will be presented during the Third Annual Women of Color Research Sciences and Technology Awards Conference in Nashville, Tenn., Sept. 12-13, 2003. The conference celebrates the often-unheralded contributions of minority women in science and technology.

Regina has a BS, MS, and PhD in electrical and computer engineering with emphasis in requirements engineering. She says she is currently using systems engineering methods for developing the technical process and standards infrastructure for Sandia and the nuclear weapons complex.

Career Communications Group, Inc. (CCG) celebrates diversity and promotes equal opportunity for minorities and women in engineering, science, and information technology. In addition to publishing magazines and sponsoring the Women of Color Research Sciences and Technology Awards Conference, CCG hosts the Black Engineer of the Year Awards Conference and other Women of Color Technology Awards Conferences.



REGINA GONZALES

APEX

(Continued from preceding page)

Awards of Excellence:

Chris Burroughs. Feature Series Writing. Sandia Biotech Series (series of five articles + sidebars on biotech research at the Labs, *Lab News*, June 28 through Sept. 6, 2002)

John German. News Writing. "Sandia's Al Zelicoff searches for clues to Soviet super small-pox strain." Dec. 13, 2002.

Neal Singer. Media Kit & News Release Writing. "Tungsten Photonic Lattice Changes Heat to Light — News Release."

Sandia Annual Report Staff. 2002-2003 Annual Report

Noel Fletcher. One-of-a-Kind Publications — Government Publications. Booklet on economic development.

Michael Vittitow. Design and Illustration,

Covers. Cover of "Wanted: New Technologies for a New Economy."

Jan Gaunce. Books & Book Chapters. Design of the book *Building the Bombs: A History of the Nuclear Weapons Complex*.

Jerry Gorman. Illustration & Typography, Water Cycle Illustration

Phillip Brittenham. Most Improved Brochures, Manuals, and Reports. "Guide to Preparing SAND Reports and Other Communication Products." Debbie Johnson also contributed.

Sandia External Web Site team (Manny Ontiveros, Kay Rivers, Kara Madden, Hilary Bienstock, Rocky Reeder, James Muntz, Larry Perrine, Janet Carpenter, and Rogulja Wolf). Web and Intranet Sites — Web Sites. www.sandia.gov.

For more information on the awards see www.writingthatworks.com/apex_win2003.htm.

Mileposts

New Mexico photos by Michelle Fleming



Terry Bisbee
35 2115



Bob Parks
35 9512



Randy Cole
35 6415



Larry Costin
25 6117



Phillip Fuerschbach
25 1833



Robert Nellums
25 2614



Dino Pavlakos
25 9326



Robert Poole
25 14171



Fred Sexton
25 1762



Floyd Spencer
25 12323



Chris Tolentino
25 3131



Wes Baca
20 2522



Dennis Bateman
20 9334



Michael Blackledge
20 12316



Earl Creel
20 15426



William Filter
20 6524



Stephen Foiles
20 1834



Todd Haverlock
20 2561



Tony Hernandez
20 2996



Ronald Martinez
20 2553



Jeannette Moore
20 2565



Bruce Page
20 15417



Larry Perrine
20 12640



Daniel Saladin
20 8947



Janet Sjulín
20 12323



Tina Tanaka
20 6428



Jerry Wellman
20 9127



Robert Yawakie
20 5731



Brian Behling
15 10826



Sabine Boruff
15 10021



Gregory Conrad
15 6544



Marcus Craig
15 2616



Christopher Henderson
15 1739



Mark Howard
15 15414



Howard Kimberly
15 15272



Timothy Miller
15 9134



Brett Remund
15 2340



Michael Tebo
15 6536



Linda Wilson
15 3521



Mark Yee
15 15351

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

MISCELLANEOUS

SMOOTH-TOP ELECTRIC RANGE, Whirlpool, w/matching overhead range hood, \$275. Vigil, 822-1868.

DINETTE TABLE, oblong, w/6 chairs w/casters, great condition. Vallejos, 292-4625.

MATTRESS FRAME, queen-size, \$35; small computer desk, good for child, \$25; file cabinet, \$22. Huff, 296-3349.

SOFTBALL EQUIPMENT, 2 high-end bats, brand-new Rawlings glove, bat bag, \$200 for all. Baca, 284-9384.

KNEELING COMPUTER CHAIR, brown fabric, \$25; waterbed mattress, queen-size, waveless, firm support, \$125. Lanoue, 877-7902.

CRIB, mattress, sheets, blankets, quilt, bumper pad, \$150 OBO; square mesh playpen, \$25. Fisher, 293-2864.

DINING TABLE, Ethan Allen, 44" x 66" w/2 22-in. leaves, & 4 chairs. Garst, 884-5176.

SOFA, Southwestern design, w/recliners on each end, high back, excellent condition, \$350. McCutcheon, 332-3892.

TOOLS, large & small, items from engineer's shop, yard sale Aug. 1 & 2 in Peralta. Risse, 869-2037.

SOUTHWEST AIRLINE VOUCHER, roundtrip, expires 6/27/04, \$325. Benjamin, 869-9922.

DVD/MP3 PLAYER, progressive scan, digital dolby, dolby surround sound, brand new in box, \$50. Klein, 797-2407.

GE ELECTRIC DRYER & WASHER, heavy-duty, great condition, \$75 ea. Martinez, 821-7467.

SAXOPHONE, tenor, Martin-Busine, w/hard case, mouthpiece, neck strap, \$425. Blickey, 293-4694.

ARMOIRE ENTERTAINMENT CENTER, charming knotty pine Broyhill from American Furniture, very good condition, \$400. Barnaby, 255-5624.

CONTEMPORARY NATIVE AMERICAN POTS, \$10-\$600; signed Frank Howell print, framed. Hudson, 821-8988.

DINING TABLE, teak, 48" x 34", 2 built-in leaves extend table to 88 inches, 6 matching upholstered chairs, \$200. Sprauer, 293-7989.

DESK, double pedestal, sturdy metal, 30" x 60"; metal chairs, thick, vinyl-padded seats, 1 w/writing arm. Linnerooth, 299-6558.

FILL DIRT, 2 small pickup-truck loads available, free. Lowinske, 342-2249.

BEDROOM FURNITURE, light-colored oak, queen-size platform bed, w/drawers, dresser, & nightstand, \$500. Moore, 344-1982.

SOUTHWEST AIRLINE TICKETS, Rapid Rewards, transferable, expires 7/04, \$325. Widmer, 296-6911.

DINING TABLE, oak, pedestal, w/4 chairs, sits 8 w/leaf, \$300 OBO. Freier, 881-2128.

SOFA, traditional style, brownish-gold, hobnail, 2 yrs. old, excellent condition, \$200. Williams, 352-9097.

RIVER ROCK, clean, free, you haul away. Stiles, 275-2941.

BEDROOM FURNITURE, Bassett, queen, headboard, mattress, box spring, triple dresser, mirror, nightstand, chest of drawers, \$350. Gendreau, 268-3436.

MAPLE TABLE, 6 chairs, 2 leaves, \$75; maple bar stool, \$10; knick-knack stand, \$10; 20-in. TV, \$30. Williams, 896-1182.

SELECT COMFORT BED, king-size, dial your sleep number, perfect condition, \$400. Spires, 286-3459.

MATTRESS, full set, top-line Sealy Postpedic, firm, brand new, just delivered, will discount price. Koelm, 341-0605.

UTILITY OR MOTORCYCLE TRAILER, 4' x 8', \$90. Jones, 843-9645.

CRIB w/mattress, complete bedding set, mobile, etc., like new, \$200; Century toddler car seat, \$35; Hoover Steam Vac, \$50. Berg, 898-2100.

GARAGE SALE, 7/26 8:30 a.m.-1 p.m., children's items, toys, 8405 Pope Valley NE, north of Paseo & Ventura. Alvin, 797-4834.

YAKIMA LUGGAGE BASKET, Loadwarrior, 62" x 39" x 7", fits your existing cartop rails, unused, \$425 new, asking \$250. Conley, 281-6730.

CHROME GRILL GUARD, tubular, for '89 full-size Ford pickup, great condition, \$150. Gutierrez, 239-7059.

VIOLIN, 3/4-size, w/bow & case, Cremona, SV75, good condition, \$75. Henfling, 292-0794.

ARMOIRE KIT, real wood, 6 x 4 x 11/2, partially completed, cost \$225, asking \$75. Pierce, 681-5872.

MOVING BOXES, all sizes, gently used, will deliver, 1/4 of purchase price. Jackson, 291-0996.

LATERAL FILE, \$200; executive desk, \$80; credenza, \$50; computer desk, \$30; workbench, free; wood lathe, \$50. Spletzer, 294-4601.

COMPUTER MONITOR, multimedia, 14-in., Sony CPD-120VS, attached speakers, great for a kid's system, \$50. Lindsay, 836-4284.

COMPUTER: iMac DV, 400-MHz, 10GB HD, 192MB RAM, OS9.2.2, DVD, \$475; Epson Stylus C42UX printer, new \$35. Kepler, 296-0402.

KITCHEN TABLE, w/6 chairs, solid wood, butcher block, good shape, \$75; electric dryer, like new, \$125. Ritchey, 299-7082.

AIR HOCKEY TABLE, 6-ft., \$300; patio umbrella, \$50; Schwinn exercycle, \$75; used brick pavers, 50¢. Kraynik, 856-1683.

TWO CHESTS, each 6-ft. & w/6 drawers, \$100; 2 end tables, Santa Fe contemporary \$25. Mills, 294-5219.

SOFA, 3-pc. corner sectional, navy leather, Flexsteel, w/built-in recliners, \$1,500 OBO. Long, 296-2590.

ST. MARY'S UNIFORMS: sizes 5-12 jumpers, sizes 12-20 skirts, \$15 ea.; day-bed frame & trundle frame, \$150. lafonaro, 831-6501.

COMPUTER GAMES, used, \$5-\$8/ea, email CFwise@comcast.net for list. Wise, 890-7309.

JEEP SOFT TOP, '03, black, tinted rear & top quarter windows, door kit & hardware, \$800 OBO. Stotts, 298-8894.

BABY GRAND PIANO, Kimball, early 1900, refinished, excellent condition, high gloss ebony, \$3,000 OBO. Ferreira, 925-447-3310.

NORDICTRACK, Excel, \$125. Carson, 822-0142.

GPS UNIT, NavMan for Palm m500 series, includes car kit, software, \$200 new, first \$75 takes. Cocain, 281-2282.

TOPSOIL, several cu. yds., clean, you haul. Smith, 881-8464.

FIREPLACE INSERT, blower, thermostat, heats 1,200 sq. ft., fits opening 20" x 30", \$250. Ulibarri, 842-9197.

WHIRLPOOL DRYER, gas, brand new, 7-cycle, super-capacity, excellent condition, \$200. Rogers, 489-2621.

GOLF CLUBS, Dunlop Equation irons 3-9 & 3-wood, good condition \$75 OBO. Errickson, 994-0693.

DINETTE, Chippendale, 48-in.-diam. mahogany table, w/4 chairs, excellent condition, \$700. Dwyer, 271-0741.

MOVING SALE, living room furniture, computer desk, bookcases, digital theater, plants. Rider, 710-3557.

ACRYLIC BATHTUB, exquisite marble design, 72" x 42" x 19", showroom condition, includes fixtures worth \$900, asking \$250. Howard, 296-6056.

RIVER ROCK, 1.5-in., easy access, you shovel & haul, free. Fernandez, 822-0377.

GARAGE SALE, Aug. 2, 8 a.m.-noon, patio furniture, children's clothes, toys, baby stroller, 8416 Joseph Sharp NE. Puissant, 821-2447.

CRAFTMATIC BED, double, electric, w/vibrator & brass headboard, like new. \$1450. Campbell, 294-6000 RSL.

BAR STOOLS, 3 ea., "captain's chair" swivel-style, w/arms, 30" w/pads, \$140 OBO for all. Fisher, 293-2864.

FINE ARTIST FRAMES, assorted, call for styles & sizes, selling for less than 1/2-price. Steider-McCampbell, 797-1979.

COMPLETE LAPIDARY SHOP, w/some pocks, 2 saws, 4-wheel cab unit, DOP scale, etc., Cedar Crest. Barnett, 281-9056.

ELECTRIC ADJUSTABLE BED, like new, never operated mechanically, cost \$1,400 new, asking \$700. Hayes, 299-1200.

SOUTHWEST AIRLINE TICKET, roundtrip, expires 5/04, \$300; double jogging stroller, \$50; Canon 75-300mm lens, \$95. Laird, 766-7696.

WOMEN'S FOOTJOY SHOES, size 8-1/2 wide, worn twice, \$25. Blackburn, 828-9687.

HEALTHRIDER EXERCISE MACHINE; 3/4-size metal desk; both good condition, best offer buys. Borgman, 299-6010.

QUEEN-SIZE MATTRESS & box spring, good condition, \$100. De la Fe, 271-6694.

GREAT PYRENEES PUPPIES, pure-bred, 12 wks. old. Lin, 250-4258.

NEIGHBORHOOD GARAGE SALE, entire block, Sat. 26, 8 a.m.-noon, at Millstream NW. Armijo, 836-2558.

JVC SPEAKERS, 150W ea., new in original packaging, 9-5/8" x 12-11/16" x 10-3/16", \$50/pair. Wilson, 244-1949.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:

- E-MAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 0165 (Dept. 12640)
- DELIVER: Bldg. 811 Lobby
- INTERNAL WEB: On Internal Web homepage, click on News Center, then on Lab News frame, and then on the very top of Lab News homepage "Submit a Classified Ad." If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.

Ad rules

1. Limit 18 words, including last name and home phone (If you include a web or e-mail address, it will count as two or three words, depending on length of the address.)
2. Include organization and full name with the ad submission.
3. Submit ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. **One ad per issue.**
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active and retired Sandians and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. **We reserve the right not to publish an ad.**

POOL EQUIPMENT, 190,000-Btu/hr. gas heater, sand filter, pump, \$500 OBO; air conditioner, ~13,000-Btu, window-mount, great shape, \$175. Prevost, 350-2882.

WICKER CHEST, Pier One, includes glass top, used as table, excellent condition; 2-drawer bedside table. Malcomb, 294-6975.

TRANSPORTATION

'01 MITSUBISHI ECLIPSE GT, black, custom wheels, leather, 5-sp., V6, 3.0-liter, 33K miles, warranty, \$14,850. Abeyta, 463-5529.

'03 NISSAN XTERRA V6, 2WD, AM/FM/CD, automatic everything, luggage rack, 28K miles, \$16,800 OBO. McDuffie, 363-3337.

'83 GMC 1/2-TON TRUCK, long bed, shell, 156K miles, \$1,500. Williams, 344-9276.

'90 GMC 1/2-TON LONG-BED, 350 V8, 4-sp., AC, shell, bed liner, hitch, runs well, \$3,200. Anthony, 898-0491.

'97 VW JETTA GLX VR6, loaded w/all options, highway miles, very good condition, \$7,500 OBO. Martinez, 991-4733.

'01 LANDROVER DISCOVERY II SE, dual sunroofs, leather, 6-CD, cold-climate package, 26K miles, \$25,000. Romero, 286-6325.

'93 TOYOTA, short-bed pickup, red, no radio, no AC, 200K+ miles, runs well, \$1,200. Walker, 505-363-1477.

'95 NISSAN XE PICKUP, 4-cyl., 5-sp., AC, PM, AM/FM/tape, shell, 118K miles, good body, paint, & runner. Gonzales, 891-1426.

'79 MAZDA RX7 SPORTS CAR, white, w/black bra, excellent condition, a must-see, \$3,950 OBO. Atencio, 459-0185.

'98 FORD CONTOUR, light blue, 1 owner, PW, PL, new tires, all maintenance kept up, 98K miles, very nice inside & out, \$4,000. Hoffman, 352-2089.

'94 MITSUBISHI ECLIPSE GS/2D, 5-sp., AM/FM cassette, AC, alloys, new tires & brakes, 88K miles, \$4,900. Vigil, 856-3558.

'95 GEO PRIZM, AT, AC, Toyota engine, 1 owner, 84K miles, looks/drives like new. Lopez, 761-3142.

'99 SATURN SL, 4-dr., 5-sp., platinum ext, gray int, 1.9L SOHC, AC, AM/FM cassette, dual air bags, ABS, 58K miles, in great condition, \$6,000. Baca, 345-6082.

'99 CHEVY CAMARO SS, convertible, white, w/white top, fully loaded, leather, new tires, 1 owner, excellent condition, \$17,620. Carr, 890-0075.

'83 CADILLAC COUPE DEVILLE, 4100 series, 99K miles, runs well, body & interior in good shape, \$3,000 OBO. Armijo, 610-4273, ask for Lee.

'98 CHEVROLET, K350 VORTEX, dually, AT, extended cab, excellent gas mileage, white, great condition, well maintained, trailer accessories. Arana, 228-4134.

'73 VOLKSWAGEN, BUG, w/rack, 69K original miles, great shape, NM yellow, \$2,500 firm. Bernard, 281-2514, ask for Jennifer.

'02 LEXUS RX300, AWD w/premium plus pkg., 15K miles, excellent condition, \$35,900. Duncan, 271-2718, www.swcp.com\duncan.

'88 CHEVY NOVA, 4-dr., 5-sp., AC, new tires, runs great, \$800 OBO. Kavet, 299-1793.

'94 MERCURY SABLE, V6, 3.8, 4-dr., AT, power everything, CC, low miles, excellent condition, \$4,100 OBO. Carriaga, 263-8240.

'97 CADILLAC CATERA, red exterior, leather, alloy wheels, sun roof, new tires, 74K miles, \$9,000 OBO. Toledo, 480-5905.

'98 CHEVY S-10 SINGLE CAB, 5-sp., white, AC, CD, 59K miles, \$7,999. McIntyre-Pacheco, 710-0913, ask for Paul.

'99 CHEVY SUBURBAN LT, 4WD, loaded, black w/gray leather interior, tow package, 62K miles, \$17,900. Lobitz, 341-9677.

'66 MGB-GT, w/overdrive, tartan red, electronic ignition, wire wheels w/knockoffs, beautiful & runs beautifully, \$5,600. Loucks, 255-9444.

'84 TOYOTA COROLLA, 5-sp., 183K miles, good condition, \$600. Mellen, 237-8312.

'95 GEO METRO LSi, 4-dr. sedan, AC, CD, 40-mpg, 90K miles, great trouble-free commuter car, \$1,700 OBO. Burgess, 286-0606.

'97 CHEVY 1500 VAN, Rocky Ridge custom, 37K miles, has front end damage, \$4,500. Tidwell, 275-0966.

'95 FORD F250, ext cab, 2WD, Power Stroke, white/gray, excellent condition, \$10,000 OBO. Cook, 869-6908.

'95 HONDA ACCORD LX, warranty transferable, white w/tan interior, AT, CD, PW/PL, 88K miles, \$6,100 OBO. Archuleta, 565-9481.

'98 GMC SONOMA SLS, 4x4, extended cab, AC, CC, PL, PW, CD, 3-dr., V6, security system, silver, 88K miles, \$8,750. Hayward, 292-2980.

'97 ASTROVAN, rear AC, 8-passenger, PW, CD, cruise, tilt, tan, must sell, KBB, \$5,880 OBO. Yawakie, 294-6855.

'63 DODGE WAGON, 4-dr., AT, AC, seats 6, good condition, must see, \$2,500. Faucett, 296-0896.

'88 CHEVY CHEYENNE, 3/4-ton, 2WD, wrecked front end, 350 AT, good powertrain, bed, & cab, \$1,000. Lopez, 864-1277.

'98 VOLVO V70 XC-AWD Wagon, 5-cyl., 2.4 L turbo, white, SRS, 50K miles, excellent condition, \$18,900. Yourick, 822-8148.

'01 MITSUBISHI ECLIPSE, alarm, CD, new brakes/tires, white/tan, 60K miles, excellent condition, clean, \$9,700 OBO. Butler, 352-9027.

'89 CHEVY R3500, crew cab, dually, white, 454, AT, Alcoa's, loaded, top condition, \$7,000. Seaburn, 797-8715.

'95 LINCOLN TOWNCAR, fully loaded, 1 owner, excellent condition, \$7,595. Morales, 891-5758.

'89 FORD BRONCO, 4x4, V8, AT, 2-dr., 83K miles, good condition, blue book is \$5,525, make offer. Harstad, 298-6551.

'84 HOLIDAY RAMBLER, 24-ft., Class C, new tires, awning, backup camera, CD, gen., fridge/ice maker, extras, 84K miles, \$9,500 OBO. Appelman, 259-6336.

'94 MOTOR HOME, Airstream Class B, model MH-190, manuals/service records available, 18K miles, excellent condition, asking \$25,000. Hughes, 299-6674.

'86 DAHON FOLDING BICYCLE, 3-sp., 16-in., w/carrying case, used very little, \$250. Kobs, 281-1102, www.dahoon.com/piccolo-intl.htm.

'97 VESPA, 150cc, gunmetal gray, gas gauge, electric start, under 800 miles, spare tire, \$3,000. Griffith, 730-1324.

'02 KAWASAKI NINJA, ZX-9R, Yoshimura pipe, only 500 miles, like new, excellent condition, \$7,900 OBO. Deshler, 994-1861.

REAL ESTATE

3-BDR. TOWNHOUSE, 2FB, gas FP, 3812 Sunbird NW. Hatcher, 839-4726.

3-BDR. HOME, 2-1/2 baths, formal DR, loft, 1 block from La Cueva High School. Baca, 856-5542, www.micasitanm.com.

3-BDR. HOME, 2 full baths, Paradise Hills, Westside, 1,600 sq. ft., new roof, brick, large lot, like-new Barber carpet, new ceramic-top stove. Edge, 898-2685.

4-BDR. HOME, 2-1/2 baths, 2,881 sq. ft. on quiet cul-de-sac, many updates, back RV driveway, \$234,900. Elder, 298-5350.

0.77-ACRE LOT, beautiful unobstructed view, in Glenwood Hills, on ridge overlooking the city. Stubblefield, 284-2856.

3-BDR. HOME, price reduced, beautiful brick, 2-story, landscaping, 20 min to Sandia, 8309 Millstream, \$123,900. Armijo, 836-2558.

3-BDR. HOME, 2 baths, immaculate, corner lot, FP, 2-car garage, skylights, landscaping, & more, 7002 Marigot Ct. NW, \$122,000. McCollum, 269-3717.

2/3-BDR. CUSTOM HOME, 3 baths, High Desert, w/stunning mountain views, Santa Fe/Telluride style, \$499,000. Rogers, 798-0311.

3-BDR. HOME, 1-3/4 baths, 2-car garage, upgrades, beautiful, San Pedro & Indian School area, \$154,000. Martinez, 254-2271.

JEMEZ MOUNTAIN CABIN, power, water, sewer, furnished, 35 acres on Las Vacas, sleeps 10, \$625,000. Elliot, 299-2782.

WANTED

GUINEA PIG CAGE. Heintzleman, 294-1284.

WASHER & DRYER, priced under \$250. Adragna, 293-6787.

GARAGE DOOR OPENER, Stanley, 5-10 years old. Roseth, 856-6964.

FORKLIFT, w/operator, for small job. Morris, 292-5112.

WINDSOR PILATE EXERCISE TAPES. Cox, 237-1846.

COMPUTER DONATION, for nonprofit child development center, will pick-up. McIntyre-Pacheco, 873-0999.

SITTER, preferably high school/college student for after-school care for 9- & 11-year-old in Glenwood Hills area. Gritz, 292-3244.

EGGS BASKET BABY or other Beanie, willing to trade TY 2001 Signature Bear. Rodriguez, 440-5198.

GOOD HOME, for poodle/Lhasa Apso mix; Packard-Bell used stereo for sale. Miller, 332-4845.

HORSE/STOCK TRAILER, 2- or 4-horse in-line bumper-pull, must be 5.5-ft. wide min. Schaub, 505-628-8656.

COMPUTER, for Manzano High School Band, must run MS-Access. Ulibarri, 281-1897.

RECREATIONAL

'93 JAYCO POP-UP, long-bed camper, heater, fridge, stove, sleeps 4, roof rack, excellent condition, \$4,500. Adams, 262-1066.

'98 SUZUKI RM, 250 MX dirt bike, excellent running condition, very fast, well taken care of, \$2,500. OBO. Buteau, 856-7705.

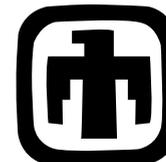
BOAT, 17-ft., O'Day Day Sailor, cuddly cabin, 3 sails, highland trailer, all excellent condition, \$2,100 OBO. Schaub, 821-7242.

RECUMBENT EXERCISE BICYCLE, Schwinn, new, w/computer, \$50. Weaver, 296-0992.

'98 ALLEGRO, Class A, 27-ft., 454 eng., elect. jacks, gen., fully loaded, sleeps 6, gas grill, awning, rear bed, dinette, 38K, \$12,500 OBO. Cordova, 299-1652.

'93 HONDA GOLDWING, 40-channel CB, Tulsa windshield, back & arm rests, hitch, & much more. Rice, 352-7590.

'96 ELKHORN CAMPER, by Fleetwood, \$7,500. Maldonado, 489-0236 or 792-1606.



Telephone Pioneer Museum has Sandia connection

It may be one of New Mexico's biggest non-military secrets. But it's sure worth checking out. Especially for Sandians who remember the Labs' historic 44-year link to the original big telephone company, AT&T.

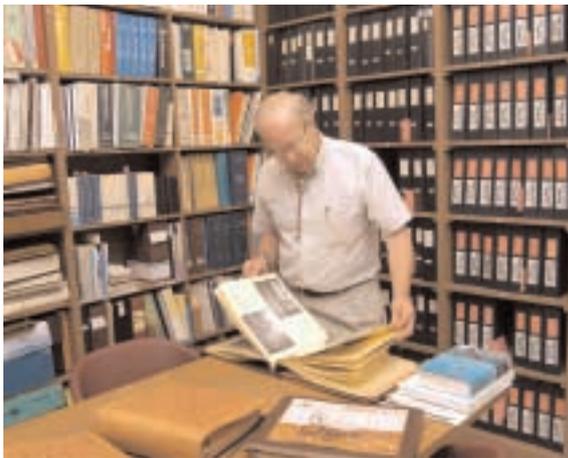
The Telephone Pioneer Museum of New Mexico at 110 4th Street NW on the walking mall north of Central Avenue in Albuquerque is six years old. It has a wide variety of interesting educational displays augmented by audio explanations describing telephone and communication gear and artifacts from New Mexico and is housed in the original and restored 1906 brick AT&T central office building.

The museum is the brainchild of board chairman Gigi Galassini and is completely constructed and staffed by volunteers — who are always needed to carry on expansion and maintenance of the facility. Exhibits range from the plug-type switchboard from Columbus, N.M., where the call went out that the Mexican rebel Pancho Villa was raiding the United States, to working teletype machines that spread breaking news around the world for many years.

Volunteer Jesse Allen (5332) refurbishes and maintains demonstration teletypes located on the main floor of the museum. He was an engineer with Bell South before coming to Sandia in 1960. Visitors who tour the museum are reminded of another long and proud connection with Sandia: AT&T at the request of then



LOOKING BACK — Myra O'Canna, right, Sandia archivist, and Gigi Galassini, Telephone Pioneer Museum of New Mexico chairperson, are surrounded by some of the museum's artifacts. (Photos by Randy Montoya)



MUSEUM VOLUNTEER LIBRARIAN Gay Dybwad looks through a scrapbook at the museum.

President Truman was the administrator and technical advisor for Sandia for four-plus decades starting in 1949.

AT&T hardware is displayed on all four floors of the museum, and many of its historical documents are held in the museum library. The volunteer librarian is retired Sandian Gay Dybwad, who transferred to the Labs from AT&T Bell Labs in 1990. Sandia, through its archivist Myra O'Canna (9612), this year donated AT&T/Sandia memorabilia to the museum to commemorate the 44-year interaction of the two institutions.

Sandians are urged to visit this hidden treasure of New Mexico history. Hours are from 10 a.m. to 2 p.m. or by appointment, Monday through Friday, (505) 842-2937. — Gay Dybwad (Ret.)

Feedback

Q: Why do we allow people to be rude via e-mail? Why is it acceptable to ignore someone's e-mail when it is obvious the e-mail is directed at the individual it was addressed to and implies a response is needed? Why is this rude behavior acceptable and, more importantly, tolerated instead of being punished?

A: Common courtesy among individuals in the workforce makes sense in every way. The workplace is more pleasant, productivity is higher, job satisfaction improves. In the specific instance cited here, it would be inappropriate for the e-mail team or Sandia management to intervene in what is essentially a dialog, or lack of it, between two people. Perhaps the recipient was incredibly busy, or ill, or swamped by e-mail and phone messages, or otherwise distracted, or perhaps the recipient was purposely ignoring the request for a response. The fact that a person can intentionally ignore a request does not imply that the behavior is acceptable. In this case the practical way to express that "rude" behavior is not acceptable is for the sender to express that thought explicitly to the recipient. — Frank Mason (9320)

Q: I work in Bldg. 6585 in Area 3/5. I've become accustomed to the occasional sled-track test nearby, but due to recent international events, I am jumpy when my building rocks from an explosion. The number of people in the hallway after a loud "boom" nearby indicates I'm not the only nervous one. Without sacrificing security, is there some way to give us folks out here in the sticks a little notice of upcoming tests? Is there a standard day or time we can routinely expect tests? It would be reassuring to know these are planned events and not accidents.

A: It is important to note that testing in remote areas, such as the Sled Track, is conducted not only by Sandia, but the DoD as well, and such testing is expected to increase. So, "booming" noises will likely remain a part of our work environment. The good news, however, is that Sandia will soon have a system in place within remote buildings to notify occupants of an actual emergency. Despite our inability to issue advanced notices to building occupants before testing, our Emergency Operations Center (EOC) is aware of all planned testing events. If you're concerned by a loud noise or wish to report suspicious activity, please call the EOC at the non-emergency line, 844-0311, and the EOC will deploy the appropriate response. Of course, in the event of an actual emergency, call 911 (cell phone 844-0911). For additional information about emergency preparedness, call Sandia Emergency Management at 844-6515 to obtain a copy of the *Emergency Preparedness Pocket Guide* with important phone numbers, procedures, and other key information. — Jaime Moya (9130)

Vanpooling 25 years: Sandian protects environment and puts \$\$ in his pocket

By Iris Aboytes

Avoiding the stress of driving and saving \$70,000 over 25 years sound like promises made by a telemarketer. For Paul Romero, an environmental technologist in ES&H Customer Support Teams Dept. 3127, those are the reasons why he has been in a vanpool all these years. His family has appreciated that when dad gets home he needs no down time.

Paul lives in Belen, a 50- to 55-minute drive to Sandia. Using IRS' allowance figures of 36.5 cents per mile, Paul calculates he has saved about \$70,000 in gas, insurance, and wear-and-tear on his private vehicle. His 300,000 miles of shared driving have also prevented the emission of about 208,000 pounds of carbon dioxide, among other air pollutants.

"I have to come to work anyway," says owner/driver Jose Marquez (12681). "There is a disabled lady that I pick up. She works at New Mexico Regional Federal Medical Center (Kirtland Area Hospital). It would be a lot harder for her to get to work if I did not

have the vanpool and besides, like I said, I have to come to work anyway."

"Leaving the house at 5:50 a.m. to be at work at 7 a.m. might not appeal to everyone," says Paul. He and his fellow riders take advantage of the time by reading or by taking a nap. "Naps are more prominent in the afternoon since you get up so early," says Paul.

Annette Chavez (9615) says she takes the vanpool because it is convenient. "I have been in the vanpool for 12 years and I enjoy it," says Annette. "It takes a little longer getting home, but I relax, avoid stress, and save on the wear-and-tear of my personal vehicle."

The vanpool is available not just to Sandians but also to employees who work at Kirtland and areas of close proximity, like Costco. "If you do not want to ride the vanpool every day, you can ride it just two or three times a week. There are options," says Paul. "Try it, you might enjoy it."

For Sandia-specific information about commuting alternatives call 844-RIDE (844-7433).