

NewsLetter

Week of Oct. 25, 2004

Vol. 5, No. 22

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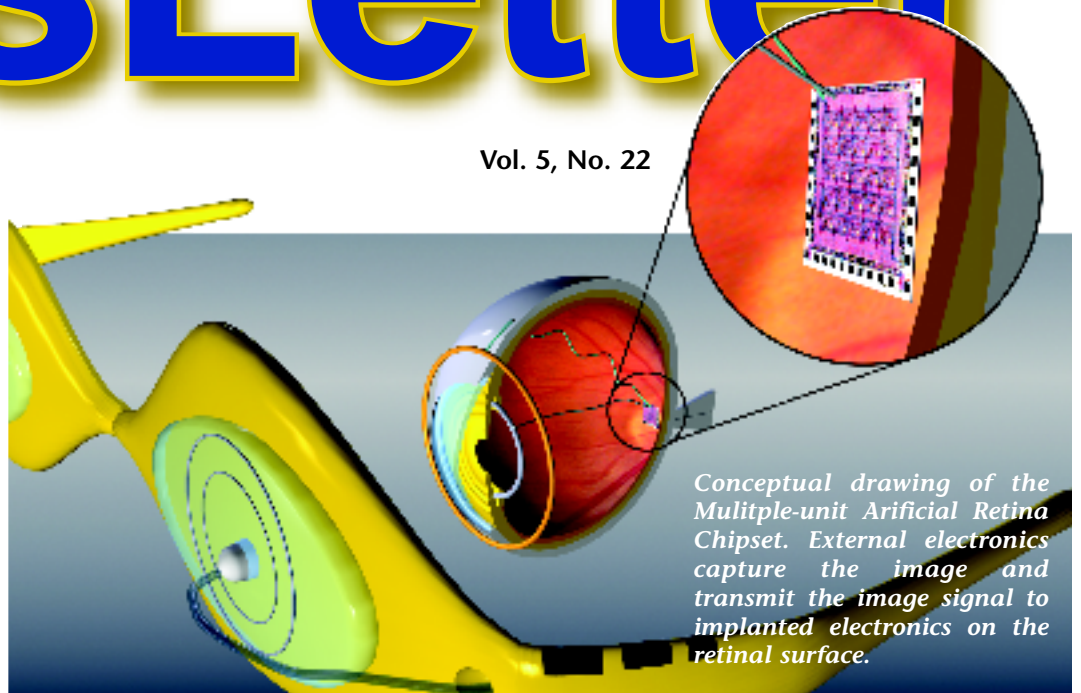


Toppers got the beat ...
 This week's Spotlight features Clair Sullivan of Advanced Nuclear Technology (N-2). Sullivan is Los Alamos High School's drumline

instructor and former college band member of the University of Michigan's marching and hockey bands.Page 8



The Laboratory is in the midst of its 2004 United Way Campaign, "Making One Small Difference After Another." Do you accept the premise that a contribution to the annual United Way Campaign, no matter the size, can help make a difference in the lives of all New Mexicans? Learn what your co-workers had to say on Page 6.



Conceptual drawing of the Multiple-unit Artificial Retina Chipset. External electronics capture the image and transmit the image signal to implanted electronics on the retinal surface.

Lab part of team studying nerve activity to improve artificial retina

by Jim Danneskiold

The Laboratory is supporting the Department of Energy's artificial retina project by developing better ways to visualize and interpret the patterns of neural activity that result when the retina is stimulated. Employing new and existing techniques, a team from Biological and Quantum Physics (P-21) has produced movies of the dynamic responses that characterize the function of the ganglion cells that make up the optic nerve.

Los Alamos' efforts to detect, record and model retinal nerve signals have two main goals:

- understanding how the retina processes information so next-generation artificial retinas can better reproduce natural visual function; and
- learning how best to apply electric currents or magnetic fields to stimulate nerve cells in the retina.

One-third of the human brain plays a role in vision, with more than 30 separate specialized areas dedicated to processing visual information. The question that Los Alamos scientists and their colleagues in the artificial retina project ultimately seek to answer is whether they can develop electronic technology to produce neural activity that is close to what the brain would normally receive from a natural retina. If so, experience with

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Marquez addresses legislative oversight committee

Associate Director for Administration Rich Marquez presents testimony before the State Legislature's Los Alamos National Laboratory Oversight Committee recently at the State Capitol building in Santa Fe. Marquez provided the oversight committee with information on a wide array of issues, including the current status of the resumption of operations at the Laboratory. In his testimony, Marquez discussed the outcome of the Welch salary analysis, which resulted in pay raises ranging from \$170 to \$10,000 for 792 Laboratory employees, the status of Los Alamos' Contingent Worker Project, diversity facts and figures for the Laboratory work force, average salary levels for Laboratory employees and whistleblower protection at the Laboratory. Marquez answered questions about these topics and others for more than an hour after he concluded his testimony. Photo by LeRoy N. Sanchez



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Howl-o-ween safety

There is no real "trick" to making Halloween a treat for the entire family. The major dangers are not from witches or spirits but rather from falls and pedestrian-car crashes. To help make this Halloween a safe one, the Integrated Safety Management Program Office (ISM/PO) and the National Safety Council offer these tips.



Motorists: Watch for children and other pedestrians darting out from between parked cars and walking on roadways, medians and curbs. Enter and exit driveways and alleys carefully.

Parents: Make sure that an adult or an older responsible youth will be supervising the outing for children under age 12. Establish a return time and tell youngsters not to eat any treat until they return home.



Costume design: Costumes should be made of fire retardant material and be loose so warm clothes can be worn underneath. Strips of retroreflective tape should be used to make children visible.

Face design: Facial make-up is recommended. If masks are worn, they should have nose and mouth openings and large eye holes.

On the way: Instruct children not to enter homes or apartments without adult supervision. They should walk on sidewalks. If there are none, walk on the left side of the road, facing traffic.

Treats: Insist that treats be brought home for inspection before anything is eaten. Wash fruit and slice into small pieces. When in doubt, throw it out.

For more Halloween safety tips, go to the National Safety Council's Web site at www.nsc.org/library/facts/halloween.htm online.



FROM THE TOP



Energy Secretary Abraham speaks to Laboratory work force



Energy Secretary Spencer Abraham

Department of Energy Secretary Spencer Abraham spoke to the Laboratory work force in the Administration Building Auditorium at Technical Area 3. Abraham thanked Laboratory employees for their continued scientific excellence; he also thanked employees who recently received DOE E.O. Lawrence Awards and the five R&D 100 awards Los Alamos received this year. The secretary reiterated his support for Laboratory Director G. Peter Nanos' decision to suspend work "and to take strong disciplinary action to address those few who thought they didn't need to follow the rules." Abraham said he wants Los Alamos to continue to thrive and grow. "But in order for that to happen, we must not lose the confidence of those who ultimately will make decisions affecting the future of this institution," he said, adding that Los Alamos is on the right track. "We have to present a track record on science, security and safety that answers every criticism and precludes future [criticisms]. This is today's challenge." In his concluding remarks, Abraham said Los Alamos has a bright future. "When people think about world-class science, cutting-edge experimentation and groundbreaking research, they will always think immediately of Los Alamos as they have done since the days of the Manhattan Project," he said. "Because of your commitment, Los Alamos will continue practicing the world's greatest science protecting America. Because of your dedication, Los Alamos will continue its impressive accumulation of scientific honors and its publication of groundbreaking journals." To read the entire text of Abraham's remarks, go to www.lanl.gov/orgs/pa/newsbulletin/2004/10/15/Abraham_Remarks.pdf online (Adobe Acrobat Reader required). Photo by LeRoy N. Sanchez

Lab part of team ...

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existing systems, such as the cochlear prosthesis used to restore hearing, suggests that the brain will learn to interpret the signals from the artificial retina as authentic visual information.

Los Alamos researchers employ a combination of dynamic functional imaging techniques and detailed computational simulations of visual networks to seek a better understanding of how the visual system processes information. This in turn should help optimize the processing and encoding of visual information to drive a retinal prosthetic implant.

Because little is known about the natural (or electrically stimulated) activity of retinal nerve cells, tools are needed that can probe the function of networks of neurons. Using high-performance video cameras and near-infrared illumination, the Los Alamos team can record tiny changes in the optical properties of neural tissue that are associated with function. Other optical imaging methods measure changes in blood flow and oxygenation that are slow, indirect responses to the metabolic demands of nerve firing. Laboratory researchers can image light scattering and birefringence changes that are direct physical consequences of the electrical activity of nerve cells.

In birefringence measurements, the tissue sample is illuminated with polarized light, and the light transmitted through the sample is recorded through a rotated polarizing filter. The crossed polarizer eliminates light that isn't carrying the optical signal, greatly increasing the signal-to-noise ratio and thus the sensitivity of these measurements. However, transmitted light measurements are impractical for most applications of functional imaging. Researchers cannot put a light source behind the retina, so they must rely on measurements of reflected light. Los Alamos researchers have recently demonstrated the feasibility of using reflected polarized light to record dynamic responses from isolated nerves, paving the way for new imaging techniques that eventually could be employed by medical practitioners.

Furthermore, the Los Alamos team has developed a theory of what goes on inside the nerve cells to produce these polarized light signals — minute swelling due to the electrical excitation — and supported this idea with experimental data. Lab researchers developed a computer code that predicts the electrical responses of individual cells and an overall model of the retina that can directly predict the dynamics of firing in retinal neurons as a function of the location of the neuron and pattern of light applied to the retina.

Of course, the ultimate purpose of these models is to improve the retinal prosthesis. The first and largest technical challenge of the artificial retina project is to improve the interface between the retina and the electronics. To that end, the Laboratory is exploring alternative technologies for the implanted stimulating arrays. Instead of flexible electrode arrays designed to conform to retinal surface, arrays of three-dimensional electrodes manufactured to match the curvature of the retina may produce a more practical, tightly integrated interface between the prosthesis and the cells. The Los Alamos team is exploring the use of novel microfabrication techniques to grow arrays of microscopic, three-D electrodes from a variety of materials. These methods also allow the construction of more complex structures that may enable new technical strategies.

The Laboratory also is exploring novel approaches that might do away with electrodes altogether. Electrodes depend on an electrochemical interface, which can corrode over time. However, in principle, retinal neurons might be activated by focused magnetic stimulation transmitted through arrays of sealed magnetic microcoils, thereby avoiding such potential damage. To achieve this, the team must better understand the biophysical mechanisms that allow magnetic fields to stimulate nerve cells. This effort will depend on lab capabilities in electromagnetism theory and modeling, advanced microfabrication techniques and functional neuroimaging.

Members of the Los Alamos artificial retina team include team leader John George, Angela Yamauchi, Beth Perry, Xin-cheng Yao, Benjamin Barrows and Garrett Kenyon, all of P-21; Bryan Travis of Atmospheric, Climate and Environmental Dynamics (EES-2); and James Maxwell of Polymers and Coatings (MST-7).

Los Alamos National Laboratory NewsLetter

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

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



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Tom Bowles

Laboratory Directed Research and Development important for Lab's future

LDRD [Laboratory Directed Research and Development] is an important component of our ability to build for the future at Los Alamos. Although limited by Congressional mandate to a maximum of 6 percent of the Laboratory's budget, LDRD accounts for a disproportionate fraction of our publications, patents and awards.

The primary components of LDRD are Directed Research, Exploratory Research and the Postdoctoral Program. Each of these components address a particular aspect of the scientific vitality of the Laboratory: DRs are focused on pursuing strategic capabilities, ERs allow our staff to remain at the cutting edge of research, and the Postdoctoral Program provides the Lab's largest single source of new scientific talent. At present, the Lab invests about twice as much in DRs as in ERs and supports about 30 new Postdoctoral Fellows per year.

As means to enhance science at the Laboratory are pursued, it is

worthwhile to see if we can further optimize the effectiveness of the LDRD program. I would appreciate input or comments on how the Laboratory should apportion the LDRD funding between the DR, ER and Postdoctoral programs. The mix that we settle on will have direct ramifications on our strategy to ensure we retain the scientific preeminence of the Laboratory. Thus, it is important that we are able to clearly articulate the arguments that drive this decision. I also would appreciate input on how we might improve the LDRD review processes. This issue consists of two parts: how do we fold into the process the relevance to mission and strategic directions of the Laboratory, and how do we ensure a fair and equitable process for everyone, while at the same time keeping the burden on the review teams to an acceptable level.

Send any comments, suggestions and new ideas to CSO@lanl.gov by e-mail. I intend to incorporate the best ideas into our processes. I then plan to stabilize those processes for the remainder of my three-year tenure as chief science officer. Ultimately, it is just as important that we have a known and predictable process in place, as it is that we make changes when they are truly merited.

2005 health-care premiums released

Editor's note: The following is an Oct. 19 all-employee memo from Richard Marquez, associate director for administration.

The University of California recently notified employees by mail about open enrollment and increases to health-care premiums for 2005. I want to take this opportunity to notify all employees simultaneously about the changes.

Fortunately, our increases are lower than national trends. The modest increases are the result of increased University of California contributions in the amount of \$9.3 million and through favorable plan experience due to plan design changes implemented in recent years. For the Select EPO Plan, increases in the employee portion of the premium range from approximately

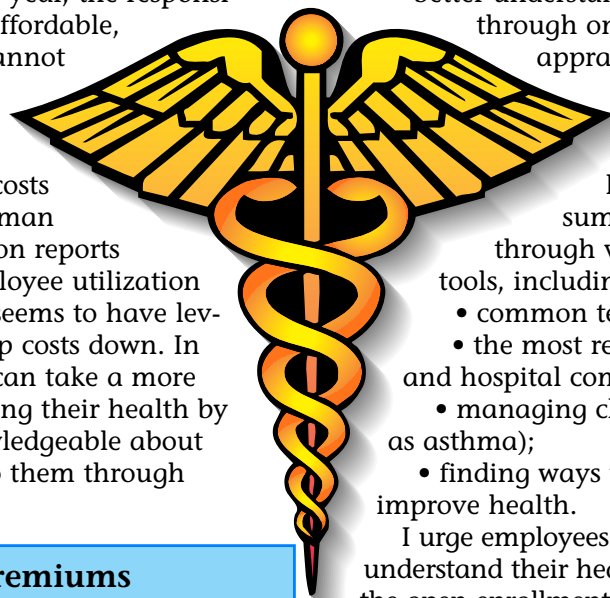
\$6 to \$18, depending on pay band and number of enrollees.

While UC has mitigated potentially higher premiums this year, the responsibility for sustaining affordable, quality health care cannot rest on an employer alone. Employees can use health-care plans wisely to keep costs manageable. The Human Resources (HR) Division reports that Los Alamos employee utilization of health-care plans seems to have leveled, which helps keep costs down. In addition, employees can take a more active role in managing their health by becoming more knowledgeable about resources available to them through

Laboratory health plans. Actions that employees can take to maintain wellness include:

- better understanding of health risks through online health-risk appraisals and access to health-care professionals;
- becoming more knowledgeable consumers of health care through various decision-support tools, including:
 - common tests and treatments,
 - the most recent medical research and hospital comparison reports;
 - managing chronic diseases (such as asthma);
 - finding ways to maintain or improve health.

I urge employees to take the time to understand their health-care options during the open enrollment period, Nov. 1 through 30. More information on open enrollment will follow. HR personnel are available to assist employees with questions and concerns.



2005 Laboratory Monthly Health Insurance Premiums (according to salary range)

Plan	Single	Adult + Child(ren)	Two Adults	Family
Select EPO				
salary range less than or = \$40,000	43.04	77.48	90.39	124.82
\$40,001 to \$80,000	51.04	91.88	107.19	148.02
\$80,001 to \$120,000	60.04	108.08	126.09	174.12
More than \$120,000	70.04	126.08	147.09	203.12
Options PPO (Living in the New Mexico PPO service area)				
salary range less than or = \$40,000	128.70	231.66	270.27	373.23
\$40,001 to \$80,000	136.70	246.06	287.07	396.43
\$80,001 to \$120,000	145.70	262.26	305.97	422.53
More than \$120,000	155.70	280.26	326.97	451.53
iPlan				
salary range less than or = \$40,000	47.04	84.68	98.79	136.42
\$40,001 to \$80,000	55.04	99.08	115.59	159.62
\$80,001 to \$120,000	64.04	115.28	134.49	185.72
More than \$120,000	74.04	133.28	155.49	214.72
Options PPO National (Not living in the New Mexico PPO service area)				
salary range less than or = \$40,000	31.34	56.41	65.81	90.89
\$40,001 to \$80,000	39.34	70.81	82.61	114.09
\$80,001 to \$120,000	48.34	87.01	101.51	140.19
More than \$120,000	58.34	105.01	122.51	169.19
Core Plan	\$0	\$0	\$0	\$0

United HealthCare meetings

Active employee meetings

- Nov. 3 — J. Robert Oppenheimer Study Center, 9 and 10:30 a.m., and 1 p.m.
- Nov. 4 — Las Vegas, Nev., Department of Energy, 11 a.m.

Retiree meetings

- Nov. 3 — Duane Smith Auditorium, 4 p.m.
- Nov. 4 — Cities of Gold Hotel, 9 a.m.
- Nov. 4 — Albuquerque Marriott Pyramid, 1:30 p.m.



Roger Johnston of Advanced Diagnostics and Instrumentation (C-ADI) talks about his path-breaking work in the area of physical security, especially as it relates to the vulnerability of critical facilities and materials to intrusion, theft or tampering, at the Fellows' Prize colloquium. Johnston is a 2004 Fellows' Prize for Research recipient.



Laboratory Director G. Peter Nanos congratulates Nan Sauer of Structural Inorganic Chemistry (C-SIC) for receiving the 2004 Fellows' Prize for Leadership at the colloquium. Center in photo is Merri Wood-Schultz of Thermonuclear Applications (X-2), Fellows coordinator and co-chair of the Fellows' Prize committee.



John Sarrao of Condensed Matter and Thermal Physics (MST-10) discusses his research towards understanding superconductivity in PuCoGa5 and in Cerium-based 115 compounds at the Fellows' Prize colloquium in the Physics Building Auditorium. Photos by LeRoy N. Sanchez

Sauer, Johnston and Sarrao honored as 2004 Fellows Prize winners

by Brooke Kent

Nancy Sauer, Roger Johnston and John Sarrao were honored by the Laboratory at a Fellows Prizes award ceremony in the Physics Building Auditorium at Technical Area 3.

In his opening remarks, Director G. Peter Nanos commended the Fellows award-selection committee for "a job well done." He said "the quality of the Fellows award recipients this year is just outstanding."

Nancy (Nan) Sauer of Structural Inorganic Chemistry (C-SIC) won the 2004 Fellows' Prize for Leadership. In its second year, this award recognizes individuals exhibiting outstanding scientific and engineering leadership; additionally, it aims to stimulate the interest of talented young staff members in developing the skills and making the personal sacrifices necessary to become effective leaders.

The awards committee highlighted Sauer's combination of personal scientific excellence, outstanding creativity and unusual determination in assembling and directing scientific teams that successfully bridged the gap between chemical research and technical applications. One of Sauer's recent successes was leading a multi-divisional team that designed and fielded a containment system, with material recovery, for the Dual Axis Radiographic Hydrodynamic Test facility at Technical Area 15. The committee also lauded Sauer's mentoring efforts in recruiting, promoting and touching the professional lives of many of the Lab's younger scientists.

"I want to thank all of the people involved on the teams I worked on," Sauer said in accepting the award. "One of the greatest things about the Lab is the ability to cross disciplines and boundaries and work with a variety of people ... I look forward to working here for many years to come."

Nanos applauded the Fellows for creating this prize. "Scientific leadership is as important to science as management is to business ... It's extremely important not only to science, but to the organization that seeks to have excellence in science," he said.

Nanos also presented the 2004 Fellows Prizes for Research to Roger Johnston of

Advanced Diagnostics and Instrumentation (C-ADI) and John Sarrao of Condensed Matter and Thermal Physics (MST-10).

The Fellows Prize for Research honors individuals for outstanding research performed at the Lab, published within the past 10 years, and exerting a significant disciplinary or programmatic impact. It is open to all full-time staff members, however, fellows and postdoctoral researchers are ineligible for consideration.

Johnston received the Fellows Prize for Research in recognition of the scientific rigor and ingenuity his path-breaking work has brought to the often-overlooked area of physical security, especially as it relates to the vulnerability of critical facilities and materials to intrusion, theft or tampering. Fellows' Coordinator Merri Wood-Schultz of Thermonuclear Applications (X-2) emphasized that, "not only has Roger been a leading contributor to this field ... [but] he carried

a major role in placing this field on a modern scientific basis, and the consequences of that shift have been enormous."

Johnston thanked the award committee for recognizing the topic of physical security as worthy of serious scientific study. "Anything that contributes to research and development in this field is a good thing," he said.

"Physical security is not a slam-dunk," Johnston said. Using everyday tools, methods and supplies, for instance, his team defeated 100 percent of all commercial tamper-detection seals, including those used in critical nuclear applications — in less than 45 minutes (and more than half in under 60 seconds). In response, Johnston incorporated an "anti-evidence"/stored secret number approach to design more than 20 new seals offering better security and total reusability.

Johnston concluded that "effective security management must be highly multi-disciplinary and integrate the technical and

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ISEC KNOWS

The following is part two of four topics discussing new electronic technologies and vulnerabilities.

New technologies, new vulnerabilities

Wireless systems, e-mail, instant messaging and Internet protocol have opened security concerns

Only a few years ago, e-mail, the Internet and wireless networks were emerging technologies. Now e-mail has branched out in directions ranging from instant messaging to spam. The Internet is the pipeline not just for data but for phone calls and even video surveillance. Yet, with technological progress comes new threats.

Computer viruses

All too often, spam messages contain computer viruses or other malicious software codes. Viruses also can be picked up by opening other sorts of e-mail, or simply by surfing the Web.

The viruses keep getting bigger, stronger and more capable. They can lurk hidden inside computers and computer networks and morph into new threats.

Traditionally, experts have advised the use of anti-virus software products on all computers throughout the network. But even that may not be enough. For one thing, the authors of these bugs are working fast and furiously on new viruses.

Another reason is that anti-virus products do not necessarily fully address other sorts of malicious software — a.k.a. "malware" — such as Java applets, Active X controls and spyware. In response, some software vendors, such as Hewlett-Packard and Secure Wave, have created software that works either by detecting any changes to an existing software setup, or even by preventing such changes from being made.

The Federal Aviation Administration has many dispersed computer servers throughout the United States, and the FAA is deploying software to protect against malware. The U.S. State Department, on the other hand, uses the product mostly to guard against loss of data.

For more information on Operations Security (OPSEC), call 5-6090.

Enterprise Project's 'Release One' unveiled

by Brooke Kent

The Enterprise Project's Release One software product recently was unveiled. Release One allows users to perform accounts payable and cash-management tasks using software provided by Oracle Corp., a leading software development company.

Earlier this month, the Lab turned off its legacy accounts payable tool, "PAID" (Purchasing, Accepting, Invoicing and Disbursing), and employees began using Oracle Accounts Payable and Cash Management tools to pay vendors, control cash and reconcile back statements. However, the Lab's old Financial Management Information System (FMIS) will continue as the financial system-of-record until April 2005, when the Enterprise Project's Release Four rolls out with the remaining financial functions.

According to Linda Lambrecht, the Enterprise Project's (EP) deputy project director for Implementation, "Release One provides employees with a more integrated system for accounts payable and cash management. By leveraging Oracle's experience with best-business processes and practices, the Lab will increase its efficiency and efficacy beyond what home-grown systems can provide."

Since Release One focuses on accounts payable and cash management, most changes will be invisible to the greater Lab audience. Nevertheless, according to Lambrecht, even these "invisible" changes should generate a significant impact on operational efficiency. Changes include the following:

- The system will generate all checks, eliminating the need for manually preparing checks except in rare situations.
- Users can request accounts payable reports directly from their workstations, needing help from Chief Financial Office (CFO) Systems only for reporting needs where they encounter problems.
- A check can be voided in one step instead of five; an invoice can be voided using two steps instead of 25.
- Users will automatically reconcile accounts, rather than having to manually reconcile 40,000 checks each month.

The Enterprise Project, named in 2003 as one of Director G. Peter Nanos' "big rocks," or critical priorities, aims to support "good business for great science." Its goal is to build a business architecture that will enable Lab personnel at all levels to do their jobs



Marie Roybal of Accounting (CFO-1) and Bryant Jones, an Oracle consultant with the Enterprise Project (EP), work on generating daily balancing reports in the new Oracle Accounts Payable system. The new system recently went live, with legacy systems being taken down Oct. 4 (as they normally are this time of year). Additionally, the project team has implemented the Oracle-based replacement for PAID (Purchasing, Acceptance, Invoicing and Distribution [check writing]). Users were able to access the system for routine work. Lori Hicks, an accounts payable team leader in CFO-1 said "The team is excited [that] the new system is online, and people are encouraged that [the] processes are going much more smoothly than expected." Photo by Linda Anderman, Enterprise Project (EP) Office

more effectively. "We are challenged to make profound changes in our business practices. We need to satisfy our customers by accomplishing our national security mission on schedule, cost effectively and in a way that makes us the preferred Lab choice. The Enterprise Project can help us do this, Nanos emphasized."

Release One marks just one step in the Enterprise Project's phased multiyear approach. Over time, the Lab will install several Oracle integrated software modules, covering everything from human resources, payroll, budgeting and accounting to program and project management. The Enterprise Project eventually will affect every employee, but at the same time, it will contain costs and improve management of human, technical and financial resources.

Lambrecht noted that "any change is difficult, and it will take time for the personnel involved to develop the expertise with the Oracle tools that they enjoy with their current systems. Nevertheless, I am confident that employees will be happy with the new system. It will let them do their jobs better,

faster, with a more integrated financial view and an improved ability to generate and access financial reports."

Enterprise Project Director George Hansrote concurred. "The essential goal is to streamline the Lab's business practices, making the overall system much more efficient and cost effective in supporting the Lab's primary mission," said Hansrote. "The Enterprise Project's four releases will provide an integrated system that enables managers and technical staff to concentrate on the job of doing science, without having to wrestle with unreasonable administrative burdens in acquiring equipment, hiring people and managing projects.

"With the roll-out of Release One, the Lab moves closer to its ultimate objective of providing employees with necessary, accurate and timely information within a simplified, modern approach that reduces the overall cost of doing business," said Hansrote.

For more information and updates, visit the Enterprise Project's Web site at <http://erp.lanl.gov/index.shtml> online, or contact the Enterprise Project Office at 5-9067.

Sauer, Johnston and Sarrao ...

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social sciences ... many major areas are largely unstudied, including international nuclear safeguards." The long-term solution, he said, lies in positioning physical security as a valid scientific field. To this end, Johnston's team recently established a scholarly peer-review publication, the Journal of Physical Security.

The other Fellows Prize for Research honored John Sarrao for his outstanding experimentalist contributions, especially towards understanding superconductivity in

PuCoGa5 and in Cerium-based 115 compounds. Deputy Fellows' Coordinator George (Rusty) Gray saluted Sarrao for opening up a new frontier in the international field of condensed matter physics. "His excitement and energy about his field are heart-warming," Gray said of Sarrao.

Sarrao described himself as part of a rich heritage of Lab science. "What we've done recently is part of an older story ... and relies on work started by [Los Alamos scientists] Joe Thompson, Zach Fisk, Jim Smith and Sig Hecker ... This field really started in Los Alamos, and it has experienced a relative renaissance over the last few years."

In exploring rare earth and transition metal oxides, borides and 4f- and 5f- intermetallics, Sarrao strives to "use chemistry as

a knob." Turning the knob creates new materials, which in turn sheds light on underlying physical principles. For example, after synthesizing both PuCoGa5 and Cerium-based 115 compounds, Sarrao discovered that the materials' superconducting transition temperatures increase by a factor of five when the shape is more tetragonal.

"Our mission is to integrate synthesis, characterization, spectroscopy and theory to drive understanding," Sarrao expounded. "It's all about predicting new things, not just rationalizing old things."

To nominate a Lab employee for the 2005 Fellows Prizes in Leadership or Research, go to the Fellows Web site at <http://int.lanl.gov/source/science/fellows/> online.

So...what do you think?

Q: The Laboratory is in the midst of its 2004 United Way Campaign, "Making One Small Difference After Another."

Do you accept the premise that a contribution to the annual United Way Campaign, no matter the size, can help make a difference in the lives of all New Mexicans? Why or why not?



April Martinez of the Research Library (STB-RL)

Yes. Sharing is caring and I believe in giving whatever a person can in order to help people in anyway possible. People's needs are more important than most wants.



Ed Pitchkolan of Experimental Science West (FMU-2)

Yes. Many small contributions can add up and make large changes.



Yvonne Martinez of the Communications and External Relations (CER) Division

Yes. This [United Way] is a wonderful organization that helps benefit people in Northern New Mexico.



Javier R. Martinez of STB-RL

As a graduate of McCurdy High School, I know the United Way helps McCurdy with funding and helps several organizations in Northern New Mexico.



Wayne Sweatt of High Performance Computing Systems (CCN-7)

Yes. I have been a member of my local YMCA [a United Way funded organization] for years. I have contributed to United Way, and I and all New Mexicans can definitely benefit greatly by contributing to United Way. It's great for your health!



Liz Roybal of Personnel Security (S-6)

I do believe that every contribution helps. Even small contributions can add up to one large contribution.

PEOPLE

Laboratory announces organizational changes

As part of efforts to strengthen laboratory operations and the senior management team, Laboratory Director G. Peter Nanos recently reorganized his senior management team and the Laboratory's Operations Directorate. The Operations Directorate has been split into two directorates that will provide enhanced services and functions to the Laboratory.

The newly formed directorates assemble expertise into a Technical Services (TS) Directorate and a Security and Facility Operations (SFO) Directorate. The Technical Services Directorate will provide services in environmental protection and compliance; project management; performance surety; facility engineering and standards; health, safety and radiation protection; resumption and operational efficiency; and counterintelligence and internal security. The Security and Facility Operations Directorate will provide the expertise to support traditional Laboratory operations, such as nuclear and waste operations, security, emergency operations, space management and site planning, and facility operations support.

No jobs will be lost in the transition. Some divisions and groups will be absorbed into new divisions to fill the needs of the two directorates; details and budgets still are being finalized.



Don Cobb

acting associate director for Threat Reduction.

"Don shares my vision for the Laboratory's future, and his leadership ability and commitment to the success of the Laboratory will play a vital role in the months ahead," said Nanos.

Carolyn Mangeng, who has been acting deputy Laboratory director, is the acting associate director for TS.



Carolyn Mangeng

Scott Gibbs, acting associate director for Operations, will be the acting associate director for the Security and Facility Operations Directorate.

"Scott has shown exemplary leadership over the last several months as acting head of the Operations Directorate," said Nanos. "In addition, he has done an excellent job leading our overall improvements in security at the Lab."



Cliff Giles

"Carolyn brings exceptional skill, insight and experience to the position," Nanos said.

"Carolyn's significant experience and involvement in areas specific to the Technical Services Directorate make her an excellent match for this position."



Scott Gibbs



Siegfried Hecker

Hecker presented the ANS 2004 Seaborg Medal

The American Nuclear Society has chosen Siegfried Hecker, a senior fellow and former Laboratory director, as its 2004 Seaborg Medal recipient.

The Seaborg Medal honors excellence in individual research achievements that have been especially beneficial to the development of peaceful uses for nuclear energy. It is named for Glenn T. Seaborg, its first recipient and a Manhattan Project pioneer, Nobel Prize winner in chemistry and notable discoverer of man-made elements, including plutonium. Before his death in 1999 he had Element 106, Seaborgium, named in his honor.

"I am thrilled to receive the 2004 Seaborg Medal," said Hecker. "Glenn Seaborg was one of America's greatest nuclear pioneers and a scientific giant. A couple of years before he died, he gave me a tie pin with the 106Sg insignia. It's a wonderful pleasure to receive an award in his honor."

The ANS Honors and Awards Committee considered nominations from the international scientific community, including technical societies, heads of governments and other appropriate individuals. The committee weighed the nominees' scientific acumen, imagination, reputation and unusual talents in scientific research, as well as their contributions to the scientific basis for a wide variety of peaceful applications of nuclear technology. Past Seaborg Medal winners include Bal Raj Sehgal, John Dornig, Weston Stacey and Dan Cacuci.

Laboratory Director G. Peter Nanos nominated Hecker for the Seaborg Medal. The Director's Office recognized Hecker's seminal contributions to understanding phase instability and phase transformations in plutonium, as well as his application of this knowledge to help ensure the safety, security and reliability of the nation's nuclear weapons stockpile.

"Sig Hecker is a true leader, both in plutonium science and cooperative nuclear efforts," Nanos said. "He guided this Laboratory through an unprecedented geopolitical transition when the Cold War ended suddenly and unexpectedly, and he spearheaded our cooperative efforts with Russian nuclear weapons complexes shortly after the Soviet Union's demise."

Hecker initiated what is now the Department of Energy's laboratory-to-laboratory program between U.S. and Russian nuclear institutes. This program aimed to help a troubled and oversized Russian nuclear complex secure its nuclear materials, prevent the leakage of crucial weapons, and prevent and respond to terrorism perpetrated with weapons of mass destruction. Hecker co-chairs the joint U.S. National Academies-Russian Academy of Sciences Committee on Counterterrorism Challenges in the U.S. and Russia, is a committee member of the National Research Council Study on "Opportunities for U.S.-Russian Cooperation on Countering Radiological Terrorism", and serves on the joint U.S.-Russian Academies Nuclear Nonproliferation Committee.

Hecker will receive the Seaborg Medal at an award luncheon Nov. 16 at the ANS's winter meeting in Washington, D.C.



October service anniversaries

35 years

Brad Holian, T-12
Michael Pierotti, SUP-8

30 years

Thomas Booth, X-5
Paul Chapman, ESA-MEE
Martin Cooper, P-25
Rickey Eavenson, DX-1
Ronald Ellis, MST-8
George Jennings Jr., DX-7
Dennis Liles, D-5
Mark Roschke, CCN-7
Gilbert Sanchez, FWO-EAST
J. Tom Sena, ESA-AET
Michel Tuszewski, ISR-1
Walter Wenzel, HSR-1

25 years

Terrence Bott, D-5
Victoria Longmire, N-4
Elaine Martinez, CFO-1
Denise McNeill, ESA-ESA
Julianne Meyne, B-4
Barham Smith, CCS-2
Robert Tafoya, NMT-1
Bernhard Wilde, X-2

20 years

David Barlow, LANSCE-1
Douglas Barney, HSR-5
Ralph Berggren, ISR-2
Jeffrey Bingham, FWO-WEST
J. Yates Coulter, MST-STC
Brenda Edeskuty, HSR-5
Michelle Ferran, NMT-9
Robert Grace, ESA-DO
Jon Hurd, NMT-4
Patrick Majerus, ISR-3
Myra Martinez, ESA-TSE
Egan McCormick, FWO-SWO
Lisa McCurdy, C-INC
Janet Neff-Shampine, P-22
Stanley Pierce, NMT-9
Joyce Riebe, X-DO
Douglas Roberts, CCS-5
Eliza Sanchez, CFO-3
Gale Slentz, CCN-5
Lynda Towers, ESA-WOI
Larry Ussery, N-2
Eric Vigil, IM-1
Vincent Yuan, P-23
Rosa Zarate, PS-13

15 years

Robert Bennett, IM-3
Randall Bos, X-7
John Carson, N-3
Scott Demuth, N-4
David Dennison, ESA-AET
Paul Dixon, EES-YMP
William Fite, CER-1
Philip Fresquez, RRES-MAQ
Leslie Geyer, CCN-2
Jeanne Gomez, SUP-2
Edwin Goodwin, B-2
Christine Hedquist, IM-1
Joe Hoisington Jr., FWO-DX-ESA
Sarah Hoover, HSR-1
Kym Kittell, IM-8
John Martinez, ESA-AET
Mark Mullen, N-4
Donna Naranjo, CCN-2
William Nystrom, X-2
F. Ross Oblad, DX-5
Richard O'Leary, MST-6
Kathleen Padgett, S-11
Sara Scott, N-DO
Dolores Sherlock, HSR-DO
Min Sung Park, B-2
Leonard Tabaka, P-22
Margaret Tapia, IM-8
Audrey Ulibarri, ISR-2
Debra Wersonick, CER-30
Laura Worl, NMT-11

10 years

Walter Atchison, X-1
Leo Baca, MSM-3
Charles Brownrigg, OEO
Willard Bryant, SUP-8
R. Lynn Chavez, B-3
A. Albert Dye, RRES-SWRC
Cynthia Eden, SUP-8
Parks Fields, CCN-5
Alp Findikoglu, MST-STC
Brenda Fresquez, AA-3
Nicole Gaedecke, IM-2
Jerome Garcia, TT
David Gurd, LANSCE-8
Aric Hagberg, T-7
Laurie Helmer, X-4
Edward Kachenko Jr., NMT-9
Joseph Lopez, HSR-7

Douglas Marbourg, PM-4
Achla Marathe, CCS-3
Brad Meyer, ESA-GTS
Timothy Milligan, NMT-DO
Maryrose Montalvo, NMT-1
Gerald Morris Jr., IM-8
Teresa Morris, CCN-7
Belinda Padilla, TT
Stephen Ruggles, LANSCE-5
Patricia Smith, DIR
Louise Trujillo, MSM-3
Matthew Williams, X-5

5 years

Brian Albright, X-1
Phillip Banks, NMT-15
Vincent Baros, NMT-16
Daniel Begay, P-24
Melissa Blueflower-Sanchez, CCN-2
Coreen Cassady, PM-4
Valerie Chavez, HSR-1
Frederick Cochran, X-3
David Cornely, MSM-DO
Renee Fresquez, CFO-3
Matthew Fresquez, LANSCE-5
Mark Gardner, CCS-1
Carol Gomez, T-10
Steven Graves, B-2
Vincent Griego, HSR-1
Abelina Griego, PS-2
Feliz Gurule, FWO-DECS
Karen Hirsch, N-2
Rebecca Lafave, ISEC
Rollin Lakis, NMT-16
J.C. Laul, PS-4
Stanford Linzey, P-24
Laura Marsh, RRES-ECO
David Pelowitz, N-1
Ralph Polkinghorne, FWO-MSE
Chris Quartieri, FWO-DX-ESA
Mike Romero, FWO-SWO
Lonnie Sanchez, NMT-7
Thomas Spickermann, LANSCE-2
Tammy Taylor, N-4
Brian Temple, X-5
Ronald Trujillo, IM-8
Genevieve Vigil, DX-3
Bryan Vigil, NMT-7
Lili Xu, CCN-8



This month in history ...

October

1492 — Christopher Columbus and his crew sight land in the present-day Bahamas.

1871 — The Great Fire destroys Chicago.

1884 — Elfego Baca arrests a cowboy near Frisco, N.M., then for 30 hours holds off a group of the cowboy's friends seeking his release.

1919 — The first ever "inflight" meals are served on a flight from London to Paris.

1923 — Edwin Hubble identifies the Cepheid variable star.

1930 — Ernest O. Lawrence invents the cyclotron.

1933 — Albert Einstein arrives in the United States, a refugee from Nazi Germany.

1945 — J. Robert Oppenheimer resigns as director of Los Alamos, accepting a post at Caltech. Norris Bradbury takes over as the Lab's second director.

1947 — Flying a Bell X-1 at Muroc Dry Lake Bed, Calif., Air Force pilot Chuck Yeager breaks the sound barrier, ushering in the era of supersonic flight.

1950 — Peanuts comic strip by Charles Schultz first appears in newspapers.

1956 — The International Atomic Energy Agency is established.

1961 — The Soviet Union detonates the largest nuclear explosion with a yield of 58 megatons.

1966 — The Los Alamos Scientific Laboratory is designated a national historic landmark.

1972 — The first Albuquerque International Hot-Air Balloon Fiesta is held.

1984 — Space Shuttle Challenger astronaut Kathryn Sullivan becomes the first American woman to walk in space.

1992 — The first lab-to-lab contracts are signed between Los Alamos and Arzamas-16 to conduct joint experiments.

1995 — President Clinton accepts the final report of the Advisory Committee on Human Radiation Experiments.

2001 — The Code Talker, a statue by Navajo artist Orelan C. Joe, is unveiled at the Southwest Indian Foundation Cultural Center in Gallup. The sculpture commemorates the Navajos who served in the Marine Corps during World War II and used their language to transmit radio messages to U.S. soldiers during battle. The messages, sent on open channels, were never cracked by the Japanese.

And this from the 1966 Atom: The annual fund drive for Los Alamos service agencies is under way this month with a new name and a new fund goal. Renamed the Los Alamos United Fund Inc., in keeping with similar changes in other cities, the project has a goal of \$45,615 for the support of 13 service agencies.

The information in this column comes from several sources including the online History Channel, the Newsbulletin and its predecessors, the atomic archive.com, Echo Vitural Center, Science & Technology, Real History Archives, and Carey Sublette, "Chronology for the Origin of Atomic Weapons" from www.childrenofthemanhattanproject.org/MP_Misc/atomic_timeline_1.htm. Submissions are welcome. Please be sure to include your source.



UC professor wins Nobel Prize in economics

Finn E. Kydland, the Henley Professor of Economics at the University of California, Santa Barbara, and a colleague have been awarded the 2004 Nobel Prize in Economics. The prize is "for their contribution to dynamic macroeconomics: the time consistency of economic policy and the driving forces behind business cycles."

"The research in the 1970s by Professor Kydland and his colleague Edward Prescott has made a fundamental contribution to the practice of monetary and fiscal policy, which other researchers have used as a foundation for their own work," said UC President Robert C. Dynes. "The work of professors Kydland and Prescott again illustrates the importance of our research universities and I am heartened that our UC students are being taught by economists of such renown."

It was the third time in less than a week that a UC faculty member had won a Nobel, the pinnacle of scientific achievement. David J. Gross, director of the Kavli Institute for Theoretical Physics at UC Santa Barbara, was among three researchers who were awarded the 2004 Nobel for physics; and Irwin Rose, a researcher in the UC Irvine College of Medicine, and two other scientists won the chemistry prize.

With the award to Kydland, 49 researchers affiliated with the University of California have won Nobel Prizes.

Bradbury Science Museum has new operating hours

Los Alamos National Laboratory's Bradbury Science Museum is moving to new operating hours Monday, Nov. 1.

The museum, located at 15th Street and Central Avenue in downtown Los Alamos, will be open from 10 a.m. to 5 p.m., Tuesday through Saturday. It will be closed on Sunday and Monday, and on federal holidays.

During the upcoming Thanksgiving and Christmas holidays, call the museum at 7-4444 or go to the museum's Web page at <http://bsm.lanl.gov> online.

The Bradbury Science Museum is part of Los Alamos Public Affairs Office in the Communications and External Relations (CER) Division.



Toppers got the beat

Lab's Sullivan directs LAHS band's drumline



“Now the drums are what keep this band together.”
—From the movie “Drumline”

by Kathryn Ostic

What do the movie “Drumline” and Clair Sullivan of Advanced Nuclear Technology (N-2) have in common? They have a strong focus on drums.

Sullivan is Los Alamos High School's drumline instructor and former member of the University of Michigan's marching and hockey bands.

“I became interested in music when I was in the sixth grade growing up in Michigan. I was always into Michigan football, and after seeing the bass drummers, I knew I wanted to be one,” Sullivan said.

Sullivan and her husband Michael Sullivan of Human Resources Deployed Weapons Physics (HR-D-WP) met in college while members of the marching band. Both volunteered to work with the Los Alamos High School's marching band shortly after moving here. They work in conjunction with the school's band director, Chandra Blackston. Sullivan's husband works with the woodwinds and marching-techniques section, and Clair Sullivan is the instructor for 13 male and female student drummers in the drumline section.



“It all happened so fast [referring to her volunteering efforts]. I really like working with the kids; it's really cool when they've been working so hard on a different piece and it clicks and you can see it on their face,” said Sullivan.

Last year's marching band was invited to play at the National 4th of July parade in Washington, D.C. One band from every state is selected, and through fundraisers such as, discount card, wrapping paper and bake sales, and sales of a twist to the common Monopoly game newly titled “Topperopoly,” which included naming spaces relevant to the school, off they went, said Sullivan.

Unfortunately, the marching band didn't get to perform July 4 because of a drenching downpour the day of the performance. “While we didn't get to march on the White House Mall we had a blast,” Sullivan said.

Naturally, the band made the best of things while in D.C. They were housed in the National History Museum basement with five other high school marching bands; eventually it became a big party, Sullivan said. “Los Alamos was well received, took over and ran the party. A professional bag pipe band also was in the house and played a concert for the group,” she added.

According to Sullivan, some of the perks of volunteering are having a good friend in Blackston and watching the students grow. “I've been where the students are and I know what they are going through. I just hope my experience can help them become a really great drumline,” Sullivan said.

Sullivan writes some music for the drumline during the off-season. She also wrote a cadence, arranged a piece for Topper Review and drumline feature for the Olympic show, which will be performed at all football games. She anticipates this fall's marching band has potential for placing high at two upcoming competitions this month in Albuquerque, she said.

For more information about Los Alamos High School marching band's upcoming performances, call Blackston at 663-2607 or see the Los Alamos Monitor for game listings.

Clair Sullivan, the Los Alamos High School's drumline instructor, prepares the drumline before the homecoming parade in October. Sullivan of Advanced Nuclear Technology (N-2) is a former member of the University of Michigan's marching and hockey bands. Photos by Mike Kolb, Community Relations Office (CRO)