

NewsLetter

Week of Aug. 1, 2005

Vol. 6, No. 16

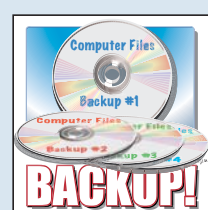
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best practice can save you, your data and documents.

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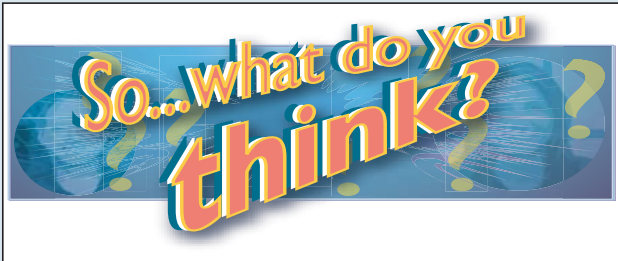
Lab volunteer teaches students about the real business world

"Ever wanted to do something that helped kids, teachers, yourself and the Laboratory? Well here's your chance." Those are the words Roy Lee of Nuclear Materials

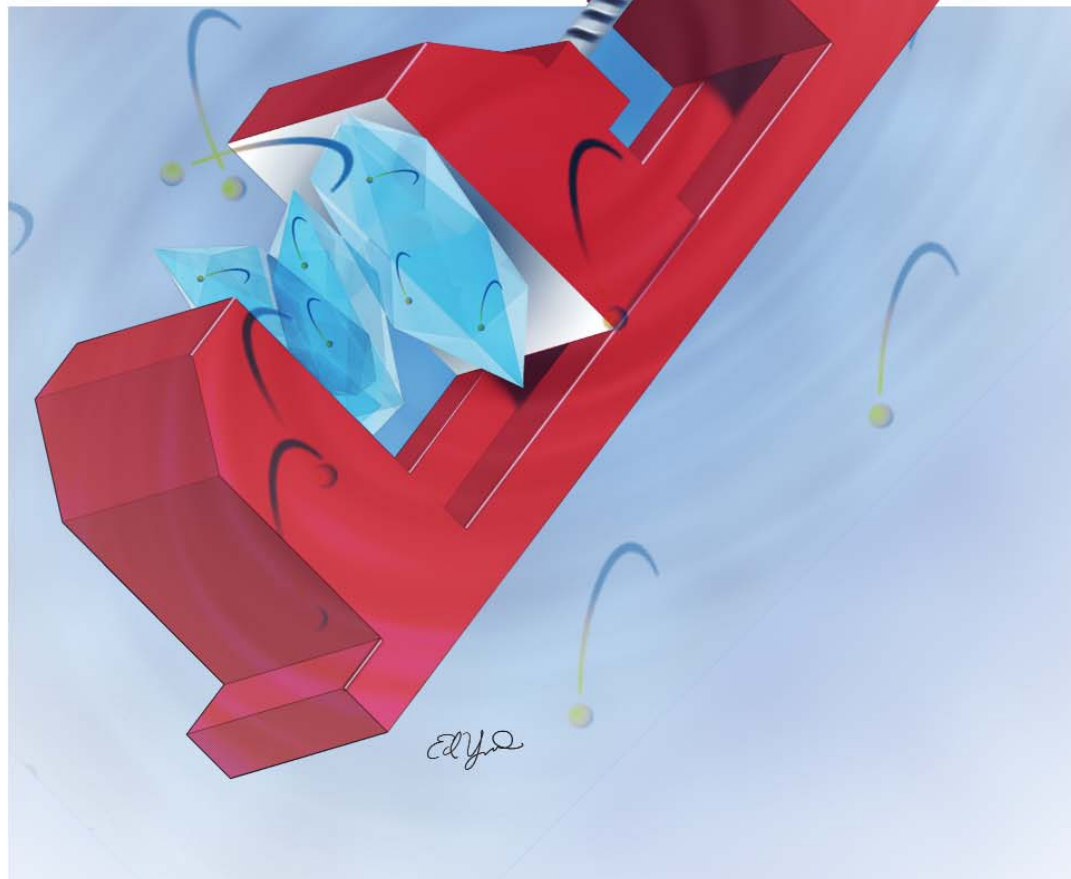


Information Management (NMT-3) uses to motivate other Lab employees to volunteer for a program that, in Lee's case, seems to be one of extreme self-fulfillment.

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Have you ever had a workplace mentor or someone who took an interest in your professional development? If so, how did having a mentor affect your career? Learn what your co-workers had to say on Page 6.



Lab scientists put the squeeze on electron spins

by Todd Hanson

Laboratory scientists have developed a novel method for controlling and measuring electron spins in semiconductor crystals of GaAs (gallium arsenide). The work suggests an alternative — and perhaps even superior — method of spin manipulation for future generations of "semiconductor spintronic" devices.

In research published in the June 15 scientific journal *Physical Review Letters*, Scott Crooker of the National High Magnetic Field Laboratory (MST-NHMFL) and Darryl Smith of Condensed Matter and Statistical Physics (T-11) describe their use of a scanning optical microscope to acquire two-dimensional images of spin-polarized electrons flowing in semiconductor crystals mounted on an optical cryostat while using a miniature "cryogenic vise" to apply gentle pressure. By squeezing the crystal in a controlled manner, and without applying magnetic fields, the researchers were able to watch the electron spins rotate (or precess) as they flow through the crystal.

"Electrons, in addition to their negative electronic charge, also possess a magnetic 'spin.' That is, each electron behaves like a little bar magnet, with north and south poles," said Crooker. "Electron spins in semiconductors are typically manipulated by applying a magnetic field, but we've found we can do the same thing, in a controlled fashion, using the [cryogenic] vise. And, the resulting degree of spatial spin coherence is remarkably more robust compared to the spin precession induced by a magnetic field."

The cryogenic vise operates at only a few degrees above absolute zero (4 degrees Kelvin) and can be used to intentionally tip, rotate and flip the electron spins. The research was conducted at the Pulsed Field Facility of the National High Magnetic Field Laboratory at Los Alamos.

The research was funded using Laboratory Directed Research and Development funding and the Defense Advanced Research Project Agency's SPins IN Semiconductors program, which is designed to encourage research to exploit the spin degree of freedom of the electron and create revolutionary electronic devices with the potential to be very fast at very low power.

Los Alamos' National High Magnetic Field Laboratory Director Alex Lacerda said, "This work is an excellent example of how the LDRD program engenders strong inter-divisional relationships and enduring experimental-theoretical collaborations at Los Alamos for the pursuit of basic science."

The research fits into a broader area of expertise the Laboratory maintains in the field of atomic physics in general, and spintronics research in particular.



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Summer outdoor activities may lead to encounters with wildlife



With summer and warm weather firmly in place, people once again embrace their favorite outdoor activities, such as hiking, walking and jogging. This also can lead to an increase in encounters with potentially dangerous animals.

Bears, mountain lions and other large wildlife species inhabit the area in and around the Laboratory, and because animals sometimes cross paths with humans, Laboratory employees are encouraged to be cautious to ensure the safety of animals and humans alike.

Ecology (ENV-ECO) issued a general notice in August 2003 about black bear and mountain lion encounters. The notice can be found at www.esh.lanl.gov/~esh20/encounters.shtml online.

Generally, if a Lab employee encounters mountain lions or black bears, they should not run or turn their back on the animal. Instead, they should remain calm and back away slowly. If it is possible, the person should return to a safe place, such as a vehicle or building. Employees should be watchful for black bears while driving, particularly on Pajarito and East Jemez roads.

If attacked and in need of medical attention, employees should call 911. Employees who feel immediately threatened by a mountain lion or black bear should contact Emergency Management and Response (EMR) at 7-6211. Sightings of bears and mountain lions can be reported to ENV-ECO at 5-8961.

The White Rock Training Center, in cooperation with ENV-ECO, Network Engineering (CCN-5) and the New Mexico Department of Health, offers a wildlife safety class, "Living with Mountain Lions, Bears, Coyotes, Deer and Elk." The class is open to all employees, subcontract personnel, and local, state and federal agencies.

Kuckuck goes before state oversight committee

Science in the nation's interest

by Steve Sandoval

Laboratory Director Robert Kuckuck recently told state legislators in Santa Fe that the Lab continues to be a premiere science institution serving the nation's interest. And he thanked legislators for their continued support of Los Alamos.

Legislators in turn welcomed Kuckuck to New Mexico. Committee Chairman State Sen. Phil Griego, D-Bernalillo, Santa Fe, Los Alamos, Sandoval, San Miguel, Torrance, told Kuckuck "It's a tough job to run a laboratory the size of Los Alamos."

At a Legislative Laboratory Oversight Committee meeting at the State Capitol, Kuckuck told members that in his two-plus months as Lab director, Los Alamos has met and continues to meet his expectations and that the Lab has "extremely competent, dedicated people" working for it. "My biggest priority is the people [at the Lab]. It fits my personal style."

Recounting how he came out of retirement a second time after being asked by University of California President Robert Dynes to serve as the Lab's director, Kuckuck said, "I really believe that Los Alamos is the premiere example of science in the national interest," adding, "When I was asked to come here and help, I couldn't conceive of saying no."

The 90-minute presentation by Kuckuck — it included questions from committee members — was Kuckuck's first meeting with this committee as director of the Lab. He highlighted his top priorities: changing the external perception of the Lab; advancing an atmosphere of trust, civility and communication; and addressing concerns and uncertainties Lab employees have in the present climate.

On the first priority, Kuckuck said Los Alamos has been under tremendous pressure and "has worked under a microscope no other Lab has had to go through."

On changing the internal atmosphere at the Lab, Kuckuck said, employees sometimes get so wrapped up in their work that they fail to understand issues other employees are facing.

And Kuckuck said he understands that Lab workers are concerned about their future at Los Alamos. He reiterated that he wants to provide Laboratory workers as much information as possible and to try and make employees comfortable. "The one thing I believe and I tell employees is that the Laboratory will be there and continue to be there," he said.

State Rep. Jeannette Wallace, R-Los Alamos, Sandoval, noted that the Laboratory is so closely intertwined with the community that when the Laboratory struggles, so does the town.

Kuckuck said over the next several weeks and months, the Lab will concentrate on sustaining safety improvements and triaging a list of high priority items to "position the Lab for maximum success in the transition."

Kuckuck also said the Lab continues to meet its mission requirements related to the stockpile stewardship program. "The Lab has some very specific challenges in this assignment," but "that's going very well," he said.

The Laboratory continues to attempt to address quality of life issues for workers, Kuckuck said. He mentioned an alternative work schedule and child care and said he wants to work closely with the community on these issues.

In response to a question about alternative work schedules from State Rep. Debbie Rodella, D-Rio Arriba, Sandoval, Taos, the director said the Lab is looking at a proposal for an alternative work schedule that is similar but not an exact replica of the "9-80" work schedule previously in place. The key issues in implementing an alternative work schedule, he told legislators, include how the Lab manages it, ensuring that all job functions are covered and ensuring that appropriate management controls are in place. Kuckuck also said he wants to talk with community leaders, non-management and management employees before an alternative work schedule is adopted.

On the issue of child care, Kuckuck told the committee that he was a deputy director at Lawrence Livermore National Laboratory when it developed a child-care program and so is familiar with the issue. "I certainly hope to have that momentum rolling before my tenure is up," he said of addressing child care at the Laboratory.

And during the wide-ranging question-and-answer session, Rep. Thomas Anderson, R-Bernalillo, asked Kuckuck what the state could do to help the Laboratory. Saying that the support the state and federal governments and local communities have provided the Laboratory "has been incredible," Kuckuck also said the Lab and legislators should keep in mind that "we're in this together and we're not going to attract the best and the brightest if we don't make it attractive for them to come here." He added, "It's a partnership."



Laboratory Director Robert Kuckuck, left, talks with State Rep. Jeannette Wallace, R-Los Alamos, Sandoval, before he addressed the New Mexico Legislative Laboratory Oversight Committee in Santa Fe. The meeting was Kuckuck's first as Lab director with this committee. Photo by LeRoy N. Sanchez

Los Alamos NewsLetter

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

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



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User facility agreements

What is a User Facility Agreement?

The User Facility Agreement (UFA) is a contractual agreement between the Laboratory and external parties designed to permit outside users, including scientists and engineers from industry, universities and other governmental agencies, to conduct research using the Laboratory's unique experimental research equipment and facilities. (The Laboratory has approximately 40 facilities currently approved and available.)

Why is a User Facility Agreement necessary?

The UFA provides the Laboratory facility managers (groups/divisions) additional sources of funding as well as commercial validation of systems, processes and procedures. In addition, partnership or collaborative agreements can be negotiated concurrently with the UFA providing technical staff with other commercial research validation opportunities and the potential to obtain additional research dollars. The highly unique laboratory facilities also can serve as a magnet for high-tech companies to collaborate with Los Alamos scientists, providing additional opportunities for technical staff to interact with industry.

How does a User Facility Agreement work?

The industrial partner directs the activity that occurs in the Laboratory facility within the framework of the agreement, with Laboratory staff oversight. Typical requests from industry for user-facility access are for fabrication, calibration, testing and evaluation of products and processes. Laboratory staff should keep in mind the following points when entering into a UFA:

- Activity must be conducted on a non-interference basis with Department of Energy-mission-related work.
- Users develop the statement-of-work describing the work they wish to perform.
- Generated information may be protected.
- Users retain rights in intellectual property that is generated, although IP is not anticipated.
- Agreements are typically one year or less, with the actual facility use defined in days or weeks.
- Partner pays all costs associated with using the facility for the tasks defined in the statement of work.
- Agreements can be put in place in two to four weeks if standard agreement language is accepted and all necessary information is received.

Keys to ensure UFA success:

- Regular communication with the partner is essential for successful agreements.
- Work should not begin until the partner's funding is received and a program code has been set up.
- The statement of work may contain company proprietary (OUO) information, which must not be disclosed.

How can I engage in User Facility activities?

For additional information or questions about having a facility approved, go to www.lanl.gov/partnerships online or contact the Technology Transfer (TT) Division at 5-9090.

Update on Appendix F Biological risk assessment

by Doug Beason, associate Laboratory director for Threat Reduction

I'd like to tell you about a particularly worthwhile project that comes from a combination of divisions across Threat Reduction and the Laboratory.

The Biological Risk Assessment project was created to develop a methodology for assessing risk for any biological agent, start to finish, and apply the method in detail to two agents (anthrax and influenza) and the Category A agents of the Centers for Disease Control and Prevention. The project provides Appendix F deliverables under Measure 4.4.

The new project expands the application to both engineered and emerging threats, agriculture and food threats — in total to

more than 30 agents. The multidivisional team developed the methodology, applied the tool and provided the deliverables to the Department of Homeland Security on time in December 2004, after an incredible three-month, all-out effort. The RA team also participated substantively in the National TopOff-III emergency exercise in the spring of 2005.

The members of the team are Norman Johnson, project leader, Center for Homeland Security (CHS); John Ambrosiano, Energy and Infrastructure Analysis (D-4); Helen Cui, Safeguards Systems (N-4); John Darby (retired); Paul Fenimore, Theoretical Biology and Biophysics (T-10) and Paul (Scott) White, Molecular Microbiology and Immunology (B-1).

The value of LDRD



by Tom Bowles,
chief science officer

As most people have heard, issues have (once again) been raised about the LDRD [Laboratory-Directed Research and Development] funding level. The House and

Senate versions limit LDRD at ~ 3 percent and 8 percent, respectively. A second issue is guidance from the Office of Management and Budget to the National Nuclear Security Administration for a 5 percent LDRD program. Since we need to provide a program plan shortly to NNSA, we are working under guidance for a 5 percent LDRD program. However, I would like to assure everyone that the Laboratory is doing everything we can legally do to retain a 6 percent LDRD program.

It is clear that a cut in LDRD would result in a loss of highly talented staff and a reduction in our long-term ability to effectively deliver in our national security programs. Anticipating questions of how LDRD is relevant to the Laboratory's mission, the CSO office and Science Council initiated an effort last fall to document what the return on investment has been from LDRD. We have been using the results of that effort as the basis for why LDRD is so important to the Laboratory.

I thought it would be useful to share with you the primary conclusions of our study. LDRD supports the Laboratory mission by 1) providing new capabilities, solving problems and reducing risk for programs; 2) making processes better, cheaper and faster; and 3) recruiting, retaining and advancing the work force. As examples, we found that 1) LDRD-funded research developed the initial approach for Uncertainty Quantification that has become a core part of assessing the viability of the stockpile, 2) LDRD-funded R&D resulted in a new approach to decontaminating Rocky Flats that resulted in significant cost savings and 3) LDRD funding of postdocs and new staff accounts for a large fraction of the work force that transition into national defense programs. The study documented that the return on investment from LDRD is significantly larger than the investment.

The Laboratory is firm in its statement that a full LDRD program is an essential and critical component of our ability to deliver effectively on our national security responsibilities.

Thanks to the work of these staff members, the Los Alamos RA project is centrally positioned to be the provider of the methodology supporting the directives of Homeland Security Presidential Directive 10. This directive called for the creation of a defensible and transparent methodology for the ranking of biological threats and the identification of knowledge gaps to decrease the nation's risk to biological threats. The Laboratory-developed methodology and application are cornerstones of the biological risk assessment delivered to President George W. Bush in January 2005.

The project has created a new direction for the biosciences at Los Alamos, a new area of application for risk assessment and a new, unequalled standard for multi-divisional performance.

Don't back out of backing up

by Brooke Kent

A computer back-up resembles an umbrella: you don't need either until the storm strikes. But once disaster hits — be it through a hardware failure, system crash or unforeseen crisis — this everyday best practice can save you, your data and documents.

"Don't assume that you're immune from calamity," says Dale Land of Departmental Computing (CCN-DC). "It may occur infrequently, but our group receives calls each year from users who've suffered computer failures and, consequently, lost everything because they never backed up."

Imagine weeks, months or even years of data and documents erased completely. According to Land, "If you value the work done on your computer, then back it up. We advise every employee who uses a computer to prepare for the worst-case scenario of lost data or documents by formulating a back-up plan."

What's the first step? Consult with your technical support specialist, whether that's someone within your group or in the Departmental Computing groups of CCN-1, CCN-2 or CCN-3. Are your data and documents being backed up now? Are you satisfied with the back-up's frequency and scope? Have you tried restoring a file periodically to ensure that the back-ups work? If yes to all three questions, then sit back and breathe easily.

If not, then discuss the issue with your technical support staff and management team. One option is a manual back-up, in which you copy your data and documents

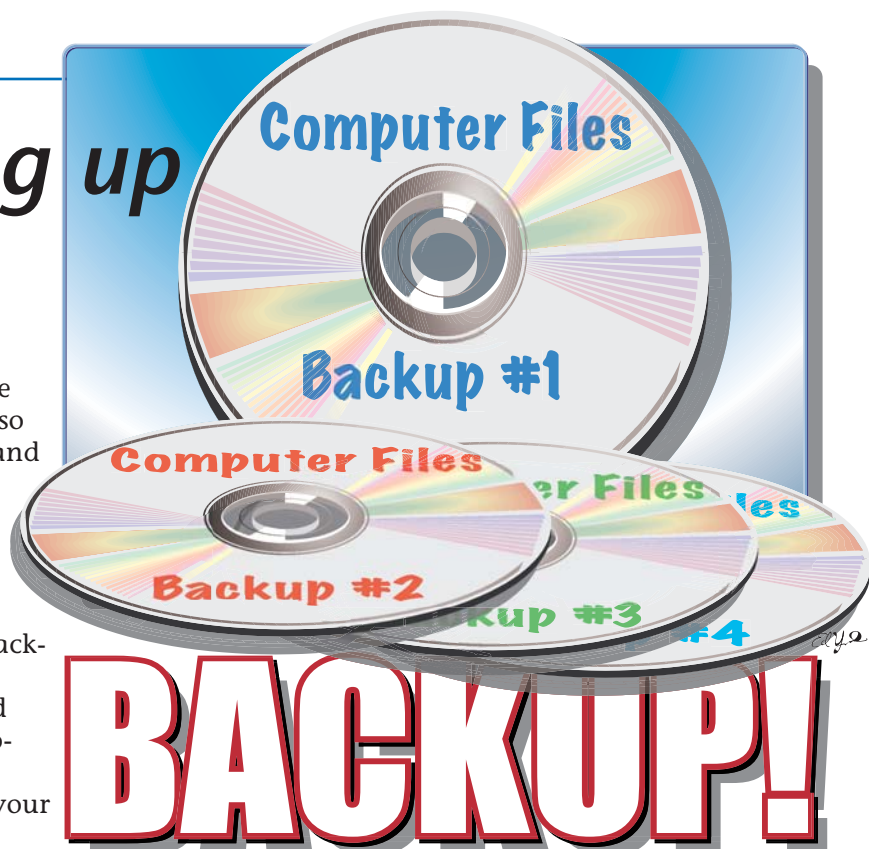
at least weekly to another source (such as a CD, DVD, tape, central directory or external hard drive).

A manual back-up may be simple and cheap, but it's also labor- and time-intensive. Land emphasizes that "a manual back-up depends on the user. What if you're swamped with work, neglect to back-up and then your computer fails? A manual back-up isn't fool-proof."

If your group's budget and policy permits, consider automated back-ups, in which a server automatically copies your information every night.

The Tivoli Storage Manager (TSM), operated by High Performance Computing Systems (CCN-7), is the Laboratory's most popular automated back-up system. TSM uses an IBM client/server software product to provide full and incremental backup and archival service for all types of platforms. TSM keeps a current daily image of your entire desktop system; it also automatically retains up to five variations of changed files.

Another, new alternative is the CCN-DC Enterprise Data Storage Service, which employs Network Appliance platforms to provide high-availability home directory and project storage, as well as roaming profiles. In laymen's terms, you can store data from a PC, Mac, Linux or Unix workstation on a central server, then access that data from any platform.



The Enterprise Data Storage Service currently serves 1,600 customers and plans to offer up to 100 terabytes of storage. This service backs up data three different ways to ensure data reliability. It aims to lower end-user costs by centralizing data availability, back-up and restoration functions, rather than leaving those tasks to the group or individual level.

For additional information on back-up options, consult the resources below:

- Desktop Computing Phone Support: 5-4444 (Option 4)
- Tivoli Storage Manager: John Bremer (5-7209) or visit storage.lanl.gov/adsm/ online
- CCN-DC Enterprise Data Storage Service: Greg Lockwood (7-2327) or visit ccn.lanl.gov/source/orgs/ccn/ccn2/storage/index.shtml online.

Automated gates to offer efficiency in Lab security

by Hildi T. Kelsey

In response to a continuing effort to comply with a mandate from the National Nuclear Security Administration focusing on increasing the efficiency of Lab security resources, Security and Safeguards (S) Division plan to install four automated pedestrian gates and one automated vehicle guard gate in certain locations throughout Technical Area 3. The transition will occur in stages beginning in mid-August and will take a little over a month to complete.

"The Guard Post Automation Project is just one of many activities S Division is taking on in response to the NNSA mandate to reduce costs through the use of technology where it is appropriate," said Mike Madden of S Division. "Automation of guard posts has been successful at other limited areas, making protective force members available for protection of other critical security areas."

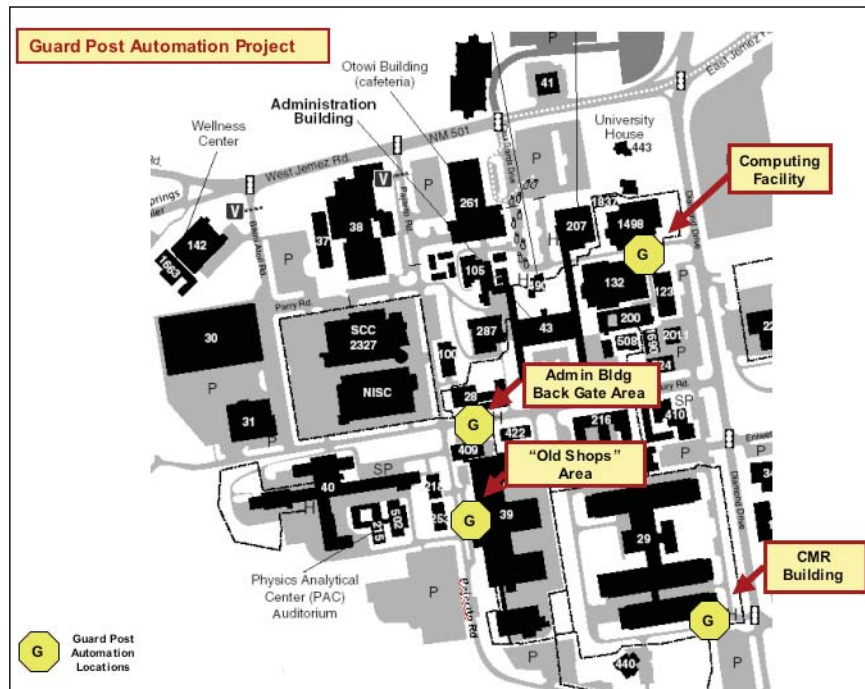
The following is a list of posts scheduled for automation:

<u>Posts impacted by automation project</u>	<u>Automation activity</u>
Post 336: (TA-3, Building 39) Back entrance to "old shops area."	Pedestrian entry
Post 311: (TA-3, Building 503) Entrance to CMR Building	Pedestrian entry
Post 411: (TA-3 Building 97 - 43) Back entrance to Administration Building (SMs 97 and 43) area	Pedestrian entry
Post 414: (TA-3 Building 1806) front entrance to LDCC/Computing Facility, often referred to as the "Chicken Shack."	Pedestrian entry/ vehicle gate

Depending on the post, employees will be required to swipe their badges through a badge reader or use a palm reader. Each person must swipe his or her badge before passing through the gate (no doubling up), and pedestrians are prohibited from passing through a vehicle gate. Employees also are reminded to review visitor escort rules prior to escorting uncleared individuals into the gates.

Protection Technology Los Alamos personnel will be reassigned to other high-level security areas.

If employees experience problems with any of the automated gates, they should contact the Security Help Desk at 5-2002. For assistance after work hours, employees can contact PTLA Station 100 at 7-4437.



Learning from success

More fun than learning from failure

by Tom Bowles and Dave Sharp, Chief Science Office, and Judith Kaye, Director's Office

Earlier this summer, Laboratory Director Robert Kuckuck convened a "Fix-It" team of employees representing the technical and support sides of the Laboratory. This team investigates and brainstorms solutions to issues raised by staff and various Laboratory organizations, such as the Group Leader Action Council, the Division Leaders Council, Dot Com and others. The director asked the team to concentrate its efforts on smaller, more immediate issues that, if solved, would remove obstacles to doing science. The group now meets regularly to identify potential problems for solution and to appoint champions to ensure resolution of these problems.

This new problem-solving initiative, led by the Chief Science Office (CSO), enlists subject-matter experts and champions to quickly resolve "bite-sized" problems that hinder scientific work. These subject-matter experts and champions also provide ideas and tools for developing longer-term, systemic solutions to certain issues. Examples of problems being addressed include those related to the transport of sub-accountable quantities of radioactive substances; timely delivery of gas cylinders; rapid procurement of chemicals (Chemistry Division); and problems with university contracts.

A number of successes have been achieved already, such as those related to the transportation of hazardous chemicals (see "A transportation issue resolved" at right) and foundation-supported research. With regard to foundation-supported research, the National Nuclear Security Administration Los Alamos Site Office agreed last month to accept requests, on a case-by-case basis, for applying a reduced overhead rate to research supported by private, not-for-profit foundations. Because of the potential importance of foundation grants to the science and programs of the Laboratory, removing barriers to foundation-supported research is an important step forward in the Laboratory's strategy for supporting small-scale, innovative science required to accomplish its missions.

Director Kuckuck has asked the team to vigorously pursue these grass-roots efforts to remove obstacles that prevent Lab staff from spending time as productively as they'd like to. Typically, solutions will require the engagement of various concerned parties and a willingness to persevere in finding a workable solution. As we move forward with this initiative, we will keep employees posted on the progress.

For more information, contact Dave Sharp in CSO at 7-5266.

Editor's note: The following column by T. Mark McCleskey of Actinide, Catalysis and Separations Chemistry (C-SIC); Johnna Montoya of HazMat Packaging and Transportation (SUP-5); and Dennis Ritschel of Business Law (LC-BL) notes the successful resolution to a problem related to the transportation of hazardous-chemical samples at the Laboratory, which was the result of the director's new problem-solving initiative, led by the Chief Science Office, that enlists subject-matter experts and champions to quickly resolve small problems that hinder scientific work.

A transportation issue resolved

A recent issue regarding the transportation of hazardous chemical samples between sites has been resolved. Actinide, Catalysis and Separations Chemistry (C-SIC) had a standard operation procedure for transportation of small samples between technical area sites on file with HazMat Packaging and Transportation (SUP-5). A desktop audit revealed that the SOP needed to be updated to ensure that it complied with the Department of Transportation hazardous materials regulations. In the process of updating the SOP, the question of training came up as an issue. The initial SUP-5 interpretation suggested that the full training plan for a driver/shipper/packer of hazardous materials, involving five to six classes, would be required. Researchers in C-SIC had a different interpretation of the DOT rules and believed the transport of small quantities should be exempted from the training under 49 CFR 173.4 of the DOT regulations.

In an effort to resolve the different interpretations, representatives of both groups met with Laboratory Counsel (LC). Based on that meeting, the SOP was modified to be sure it stayed within the bounds of 49CFR173.4, and the required training was reduced to reading the SOP procedure.

By seeking a knowledgeable third party to help with interpretations of what can be a very confusing legal document, a solution was developed. This solution makes it possible for researchers to transport small quantities of some hazardous materials with reasonable training requirements, ensures that the researchers understand the legal limits for transportation of materials and reduces the work load on the SUP-5 transportation system. Since finalizing the SOP, SUP has verified the interpretation through a DOT Web site, where Kodak posed a similar question on training requirements.

We want to make everyone aware that small quantities (less than 30g or 30mL in many cases) of certain hazardous materials identified in 49 CFR 173.4 can be properly transported with limited training. It also is a valuable lesson-learned that Laboratory Counsel staff is very helpful in assisting with the interpretation of legal regulatory documents, especially when multiple interpretations from different organizations arise.

For questions regarding interpretations of 49 CFR, contact SUP-5's Packing and Transportation Service Center at 7-4493. SUP-5 also should be included in the review of SOPs/Integrated Work Documents (IWDs)/Hazard Control Plans (HCPs) that cover requirements for movement of hazardous materials in motorized vehicles on [Laboratory] property.



Students tour magnet laboratory

Allen Yu, left, of California, Greg Wilbur of Massachusetts, wearing hat, and Shen Huang, right, of Washington, look at a copper alloy coil used to line the inside of a proposed 100 tesla magnet at Los Alamos' High Magnetic Field Laboratory at Technical Area 35. The students have been at Los Alamos as part of the Summer Science Program, a residential enrichment program in which gifted high school students complete a challenging, hands-on research project in celestial mechanics. After visiting the magnet laboratory, the students traveled to the Laboratory's Milagro observatory in the Jemez Mountains. Thirty-four students took part in the Summer Science Program.



At left, Al Migliori of the National High Magnetic Field Laboratory (MST-NHMFL) talks to Summer Science Program students in the generator room at the magnet lab at TA-35. Migliori was describing to students how an inertial storage motor generator (not shown), used to power high-field pulsed magnets, rests on springs to keep the generator from shaking the rest of the mesa when it begins to spin at up to 1,800 revolutions per minute. Photos by LeRoy N. Sanchez

So...what do you think?

Q: Have you ever had a workplace mentor or someone who took an interest in your professional development? If so, how did having a mentor affect your career?



Elena Perez of Training and Development (HR-TD)

Yes, my Web team leader helped map out what kinds of development would help me and made sure to give me information on all my opportunities. Thanks Victoria!



Daniel Duran of Foreign Travel (STB-FT)

While at the Laboratory, I have had a few mentors all of whom have had a positive influence on my career. They have pushed me to work hard, achieve a higher education and have been an all-out positive influence on my overall achievement while here at the Lab.



Nathan Knoche of Environmental Characterization and Remediation (ENV-ECR)

I have had a few workplace mentors. Each one was able to provide guidance and advice on both workplace and career decisions. Their advice enabled me to make more educated decisions on my own and also helped me from repeating their mistakes or poor choices. Their guidance and expertise was especially appreciated when I found myself in arenas that I would otherwise have not had experience in.



Nikki Bustos of Government Relations (CER-1)

Yes, I have actually had a mentor before who was really interested in my career development. It really helps a lot when you have someone to point you in the right direction and introduce you to people

who are willing to help you grow into a well-developed corporation/company asset. When someone takes the time to invest the time and instill what he or she knows in you, it makes you feel good about yourself.



Michael Hundley of Condensed Matter and Thermal Physics (MST-10)

Yes! Having an effective mentor is crucial to developing a successful career at the Lab.



Antonya Jandacek of Laboratory Directed Research and Development (STB-LDRD)

Yes. My mentors have encouraged me to pursue my educational and career goals. They have shared with me the stories of their careers, what

they have been proud of and what choices they wish they could change. This has helped me evaluate my choices for my career path. To all my past and current mentors, someday I will have my dream job and have you to thank.

PEOPLE



Reinovsky receives Haas Award

Bob Reinovsky, program manager for Pulsed Power Hydrodynamics in the Physics (P) Division, received the Peter Haas Award from the Institute of Electrical and Electronic Engineers.

Reinovsky accepted the award at the biennial IEEE International Pulsed Power Conference, in Monterey, Calif., in June.

The award is given to "individuals whose efforts over an extended period resulted in important pulsed power programs and the growth of important areas of activity."

Reinovsky received his doctorate degree in electrophysics from Rensselaer Polytechnic Institute. He came to Los Alamos in 1986 from the Air Force Weapons Laboratory. He previously was group leader of the Shockwave Physics group and also led the Athena pulse power project.



Bob Reinovsky

Kuckuck, other personnel on LANL Foundation board of directors

Laboratory Director **Robeert Kuckuck** is one of several Laboratory employees serving on the Los Alamos National Laboratory Foundation's board of officers for 2005-2006.

Also on the foundation's board of officers from Los Alamos are **Susan Seestrom**, acting



Bob Kuckuck Susan Seestrom Bill Wadt David McCumber Ed Burckle

associate director of weapons physics (ADWP), as secretary; and **Bill Wadt**, Prime Contract Office (PCO) director, as management committee chair.

Members at large include **David McCumber**, Communications and External Relations (CER) Division leader and **Ed Burckle**, KSL Services general manager.

The LANL Foundation was created as a nonprofit organization in 1997. Since its inception, the foundation has been contributing to Northern New Mexico through educational enrichment, community and educational outreach and public service programs, and also supports a range of regional and community nonprofit organizations. The foundation invests about \$2 million into community and educational programs in Northern New Mexico each year.

The foundation also oversees the Los Alamos Employees' Scholarship Fund program in which Laboratory employees, subcontract personnel and retirees contribute to a fund that awards scholarships to deserving high school seniors and college students from Northern New Mexico. Since the scholarship fund was created, Laboratory personnel have donated more than \$1.8 million.

Book explores advances in reconfigurable computing

The field of computing has been transformed by the concept of widgets called Field Programmable Gate Arrays, integrated circuits combining logic and memory, that can process digital information. FPGAs that can be reprogrammed after their manufacture resemble microprocessors in their functionality, and they have tremendous value in such applications as satellites, where the mission may change but the computer is out of reach.



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In Memoriam

Robert Henry Martin

Laboratory retiree and longtime photographer Robert Henry Martin died Jan. 16 in Santa Fe. He was 83.

Martin, a U.S. Army veteran, joined the Laboratory in March 1947, having come to Los Alamos a year earlier as part of a special photographic group. He remained at the Lab for 33 years, retiring in April 1980. At the time of his retirement Martin was a graphics specialist in the former Information Services (IS) Division.

Prior to joining the military, Martin also was public relations photographer for Zenith Corp. Born in Chicago, he studied photography at the Chicago Institute of Design and the Winona School of Professional Photography in Indiana.

While at Los Alamos, Martin photographed numerous nuclear and thermonuclear explosions at Eniwetok Island, at the Nevada Test Site and elsewhere. Martin also was a photographer at Operation Bravo in 1954, the largest hydrogen bomb test the United States conducted.

Robert Hudson Dinegar

Lab retiree Robert Hudson Dinegar died on April 21. He was 83.

Dinegar was born in New York City. He graduated from Trinity School in 1939 and received his bachelor's degree in chemistry from Cornell University in 1942. He was commissioned as an ensign in the United States Naval Reserve that same year.

During World War II he served with the United States 7th Fleet in the Southwest Pacific. He retired from the active Naval Reserve with the rank of commander in 1975. After the war, Dinegar attended Columbia University in New York City and received a master's degree in chemistry in 1947 and a doctorate in physical chemistry in 1951.

He joined the Laboratory in 1950 in the former GMX Division. While at the Lab, Dinegar also worked in the former Design Engineering (WX) and retired from the former Detonation Systems (M-7) in 1987.

Dinegar published 25 papers in open scientific literature and was the holder of two patents.

He is survived by his wife Elaine; daughters Janice Boyd and Barbara Menicucci; son Robert; four grandchildren; brother Lt. Col. W. W. Dinegar and sister Caroline Dinegar.



July employee service anniversaries

35 years

Benjamin Gibson, T-16
Alfred Garcia, IM-9

30 years

Lucille Chavez, FM-DO
Elena Fuentes-Ortiz, SUP-6
David Gallimore, C-AAC
Joseph Howard II, ESA-ESA
David Ledbetter, DX-3
Bobby Mansfield, HSR-1
William McNeese, CCN-5
Patrick Montoya, NMT-15
Loyola Romero, NMT-4
John Stephens, C-ADI
Willard Williams, NMT-4

25 years

Jose Archuleta, MST-8
Thomas Blum, NMT-10
Diana Duran, HSR-2
Camilo Espinoza, P-25
Alfred Fernandez, ISR-2
Corinne Fresquez, CCN-18
Stephen Harmony, CCN-1
Beverly James, T-4
Michael Leitch, P-25
Ju-Chaun Lin, D-5
Damian Martinez, SUP-3
Michael Murrell, C-INC
Christopher Roybal, S-2
Gloria Sharp, IM-1
Mary Timmers, ESA-TSE

20 years

Virginia Caizza, CCN-4
Deana Carnes, IM-8
Jose Chavez, ESA-WOI

Shirish Chitanvis, T-14
Sandra Embry, SSMO
Becky Guillen, NMT-15
Rajan Gupta, T-8
Michael Howe, HAZMAT
Jiri Kubicek, FM-EAST
Babetta Marrone, B-1
Wanda Medina, NMT-16
Steven Parks, SSMO-SD
Erma Pearson, CCS-DO
Seppo Penttila, P-23
John Rhoades, CER-20
Michael Schick, D-3
Nancy Swickard, CFO-2
Carl Trujillo, MST-8
Dennis Trujillo, IM-9
Leonard Trujillo, NMT-11
Esther Vigil, T-7
Grace Vigil-Salazar, SUP-3
Karl-Heinz Winkler, CCN-8

15 years

Eleanor Alarid, T-DO
Mark Bourke, MST-8
Julie Bremser, DX-1
Shelly Cross, CCN-2
J. Carl Frostenson, AA-2
Paul Graham, NMT-15
Connie Gutierrez, AA-3
Mary Hall, D-2
Dennis Hamerdinger, FM-WFM
Cheng Ho, ISR-2
Laverne Johnson, CFO-2
Peter Lichtner, EES-6
Geoffrey Mills, P-25
Russell Mitchell, DX-5
Markham Rainbolt, ESA-EDE
Rene Sanchez, N-2

Louis Silks III, B-3
Barbara Tenorio-Grimes, CER-1
Murray Wolinsky, B-5

10 years

Dennis Basile, PM-DS
John Becker, X-4
Eva Birnbaum, C-INC
Jerry Bueck, PS-4
Scott Crooker, MST-NHMFL
Scott Doebbing, PADNWP
Debra Garcia, CFO-3
Kendall Hollis, MST-6
Bobbie Jo Lovato, CCN-4
Reggie Maestas, NMT-3
Tina Martinez, NMT-3
Peggy Montoya, NMT-4
Christopher Olsen, IM-3
Keith Orr, PM-DS
Jason Pepin, ESA-WR
Martin Ritter, ESA-WSE
Russell Romero, ESA-EDE
Debbie Roybal, MSM-DO
W. Brian VanderHeyden, T-3
Paul White, B-1

5 years

Carrie Atencio, ENG-ITS
Anthony Belian, N-1
H. Helen Cui, N-4
Nehal Desai, CCS-1
Laura Fraser, IM-3
Marvin Gard, EES-2
James Lee Jr., D-DO
Greg Lower, MST-OPS
John Schultze, ESA-WR
Benjamin Sims, D-1
Veronica Sisneros, CFO-1
Joshua Smith, C-DO
Natalie Smith, HSR-1
Marc Taylor, NWIS-TP



**Orbit is Coming!!!
Aug. 9**

Los Alamos National Laboratory and Northern New Mexico Night at Isotopes Park



The Albuquerque

ISOTOPES

VS.

MEMPHIS

Redbirds



**Photo Cards
for the
1st 2,000 Fans**



Sunday, August 28

6:05 p.m.



Fan Appreciation Night

\$5 Reserved Level Seats and \$7 Box Level Seats

To order online, please use the following link: <http://www.ticketmaster.com/promo/15773>
A processing fee of \$0.75 per ticket will apply for all online orders.
The deadline to order online is Saturday, Aug. 27, by 2 p.m.

ORBIT AND THE ISOTOPES STAFF WILL BE SELLING \$5 RESERVED LEVEL SEATS ON TUESDAY, AUG. 9, AT THE OTOWI CAFETERIA FROM 10 A.M.-3:30 P.M. CASH ONLY!



BirdZerk!!!



Los Alamos
NATIONAL LABORATORY
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The World's Greatest Science
Protecting America



Orbit

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Book ...

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In a new book, "Reconfigurable Computing: Accelerating Computation with Field-Programmable Gate Arrays" (Springer-Verlag), **Maya Gokhale** of the Advanced Computing Laboratory (CCS-1) and **Paul Graham** of Space Data Systems (ISR-3) provide the first comprehensive exposition of the field of reconfigurable computing with FPGAs. The authors are among the originators of reconfigurable computing and are recognized leaders in the field.

By mapping algorithms directly into programmable logic, FPGA accelerators offer and deliver a 10X-100X performance increase over microprocessors for a large range of application domains. Reconfigurable computing is found in virtually every computing milieu, from satellites to supercomputers. By tailoring the circuit to each algorithm or by modifying parts of the circuit during operation, new commodity FPGAs rival the performance of the traditionally faster Application Specific Integrated Circuits.

Drawing on their long experience with reconfigurable computing, the authors survey every aspect of the field, from FPGA device architecture, reconfigurable systems architectures, programming languages and compilation tools to the application domains of signal processing, image processing (aided by **Reid Porter** of ISR-3), network security, bioinformatics (with **Dominique Lavenier** and **Mathieu Giraud** of the Institut de Recherche en Informatique et Systèmes Aléatoires at Rennes) and supercomputing (derived from two papers by Los Alamos authors **Christine Ahrens** of Scientific Software Engineering (CCN-12), **Jan Frigo** of ISR-3, **Gokhale**, **Ron Minnich** and **Justin Tripp** of CCS-1, **Anders Hansson** of Discrete Simulation Science (CCS-5) and **Henning Mortveit**, formerly of the Lab).



Lab volunteer teaches students about the real business world

by Erika Martinez

“Ever wanted to do something that helped kids, teachers, yourself and the Laboratory? Well here’s your chance.” Those are the words Roy Lee of Nuclear Materials Information Management (NMT-3) uses to motivate other Lab employees to volunteer for a program that, in Lee’s case, seems to be one of extreme self-fulfillment.

On average, Lee dedicates some 40 hours of personal time per school year to kids through the Junior Achievement Program, which teaches elementary students the ropes of the business world.

Lee first got involved with the Junior Achievement Program in 1999 at Sandia National Laboratories, where he participated in the program for two years. When he became an employee at Los Alamos in 2002, he decided to introduce it to Los Alamos Public Schools a year later.

The Junior Achievement Program, which extends from kindergarten to high school, is an organization of volunteers, educators, parents and contributors. The program gives youth hands-on experiences in understanding the economics of life, and also presents a chance to open young minds to their potential.

“Volunteers get to observe what teachers do on a daily basis and students get to interact with professionals and gain from their experiences,” Lee said. “It’s a lot of fun and also good PR for the Lab.”

Each year Lee looks for a group to raise money for training materials needed to run the program. This past school year, the Nuclear Materials Technology (NMT) Division provided those materials for the program.

Volunteers prepare for the program by receiving training, which is provided online or by Lee, and developing and reviewing their lesson plans and materials for the teaching sessions. Each class requires five sessions. Each session consists of 45 minutes, once or twice a week, during which a volunteer enters a classroom and teaches the students about the basics of business and what goes on in the work force.

“It’s very interactive,” Lee said. “We teach kids how to do certain tasks that would be done in a business office.” Some of those activities consist of defining business and other business terms; developing a business plan for a business that provides either a good or a service; simulating unit and mass production; and recognizing the steps necessary to get a job.

Although Lee hopes to attract about 13 volunteers each year, he sometimes only gets about four or five. Because of the shortage of volunteers, they (volunteers) must double up on



Roy Lee

teaching classes. But Lee isn’t discouraged. “I’ll teach all the classes myself if I have to in order to keep the program going,” Lee said.

“I enjoy working with kids, and it’s nice to go to schools and see that things are not as bad as you hear, plus, it helps teachers out,” Lee said. “There is nothing more satisfying than when you see a teacher in the back of the classroom, having the time to catch up on grading papers.”

Lee’s passion for the program is genuine. He believes that volunteer work for the Junior Achievement Program is a great opportunity for everyone involved.

“Kids are the future,” Lee said. “I truly believe that there is a lot that’s right with today’s kids, and we need to do what we can to help them and their teachers.”

To learn more about the Junior Achievement Program at Los Alamos Public Schools, contact Lee at 7-1119 or write to rjlee@lanl.gov by e-mail.



Martha Waters

UC Northern New Mexico office also offers Junior Achievement Program

by Erika Martinez

Martha Waters of the University of California Northern New Mexico Office (UCNNM), believes that teaching children the value of free enterprise, business and economics, is a great opportunity to help them improve the quality of their lives. That’s why she volunteers for the Junior Achievement Program, which she introduced to the James H. Rodriguez Elementary School in Española.

The program is presented to kindergarten through grade 12 students, said Waters.

“This program is a good way for employees to give back to our communities in Northern New Mexico,” Waters said. “The volunteers not only teach

students how to determine the quality of their lives, but they become role models to the children they reach.”

During each session, which lasts about an hour a day, a volunteer enters a classroom and teaches students such things, depending on their age, as understanding the difference between a need and a want, defining a variety of business terms and developing business plans.

“We are working with today’s youth that we hope will be our future work force,” Waters explained. “It is important for UC and the Lab to focus on our future work force and provide education assistance whenever possible.”

For more information about the program and how to get involved, contact Waters at 5-8714 or write to mwaters@lanl.gov by e-mail.