

Communications Project yields new logo, new slogan ... and more

Editor's note: During his State of the Laboratory address March 22, Director G. Peter Nanos showcased the Laboratory's new Unique Value Proposition, or slogan, "The World's Greatest Science Protecting America." This bold, new statement should appear on Laboratory material along with the Laboratory logo, which now incorporates the fact that the Laboratory was established in 1943. The new logo and Unique Value Proposition stem from the Laboratory's Communications Project. A memo from Communications and External Relations Leader David McCumber and Information Management Leader Kim Mousseau recently went out to managers regarding the status of the project's completed and ongoing activities, as well as upcoming events. The following is a summary of that memo.

A critical phase of the Laboratory's Communications Project is nearing completion. The project, whose main goal is to provide the Lab with a new unified institutional image and message, began approximately one year ago and has gone through a series of phases, including issue identification, senior-management engagement and employee, customer, stakeholder and community involvement.

The Communications Project's first task was to identify the problem, which it found to be a lack of focus in communication driven by the lack of a clear institutional message. No matter how good the idea, an inconsistent or unfocused message detracts



The World's Greatest Science Protecting America

from core communications goals. Poor messaging also hampers an organization's ability to relate to customers, stakeholders, employees and the community.

After the problem was clearly identified, the Lab's Senior Executive Team focused on defining the Lab's institutional message through its mission, vision and values statements. Simultaneously, a communications assessment was conducted that reviewed all forms of communications within the Laboratory. After the message, mission and values were developed, employees, customers, stakeholders and the community were engaged in order to develop a series of "benefit/concept" areas that would form the basis for the communications strategy. These benefit/concept areas were developed to emphasize a benefit that the Laboratory provides to its target audiences — benefits that customers/stakeholders said they wanted and employees said were delivered.

The purpose of this process was to develop a Unique Value Proposition (UVP), which is the foundation of all institutional communications, to capture the essence of each of these benefit/concept areas. In developing the Laboratory's UVP, the following eight criteria were used to ensure the statements were on-target and appropriate:

- **Ownable** — Uniquely associated with Los Alamos National Laboratory;
- **Memorable** — Easy to remember;
- **Credible** — Believable;
- **Relevant** — Delivering a promise to all target audiences;
- **Sustainable** — Stands the test of time;
- **Adaptable** — Ability to reach different audiences through various communications vehicles;
- **Emotional** — Makes one feel something; and
- **Serious** — Tonality must be consistent with the subject matter.

This portion of the communications project culminated in a new logo and a Unique Value Proposition, "The World's Greatest Science Protecting America." A style guide relating to the use of the logo and the UVP and downloadable formats are available at int.lanl.gov/policies/commplan/.

"Keeping in mind that an inconsistent or unfocused message detracts from core communications goals, it is vitally important to follow the guidance when using our logo and UVP," said David McCumber, Communications and External Relations Division (CER) leader.

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Eldorado team earns victory in 14th Adventures in Supercomputing Challenge

Three members of the top-prize-winning Albuquerque Eldorado High School team talk during the 14th New Mexico Adventures in Supercomputing Challenge awards expo last month. Team members from left to right are Daniel Appel, Jeffrey Dimiduk and Thomas Dimiduk. Not pictured is Ryan Shea. Their project, "Atomistic Modeling of Biomolecular Interactions," earned each member a \$1,000 U.S. Savings Bond, while their teacher, David Dixon, received a Hewlett-Packard computer for his classroom. The Eldorado team created efficient, realistic techniques to model the long-range electrostatic interactions that help determine the structure and behavior of such motor proteins as kinesin, myosin and dynein, with potential applications to the design of nanoscale robots. For the complete story, see Page 5.

Photo by LeRoy N. Sanchez

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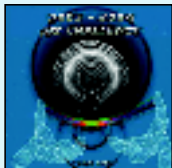
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Workers turn out in force to clean up

Employees from across the Laboratory helped beautify the areas in which they work by participating in the first Great Garbage Grab (at the Lab).Page 8

Los Alamos NewsLetter

The Los Alamos NewsLetter, the Laboratory bi-weekly publication for employees and retirees, is published by the Public Affairs Office in the Communications and External Relations (CER) Division. The staff is located in the IT Corp. Building at 135 B Central Park Square and can be reached by e-mail at newsbulletin@lanl.gov, by fax at 5-5552, by regular Lab mail at Mail Stop C177 or by calling the individual telephone numbers listed below. For change of address, call 7-3565. To adjust the number of copies received, call the mailroom at 7-4166.

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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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FROM THE TOP



Editor's note: The following is from a May 5 all-employee memo from Richard Marquez, associate director for administration.

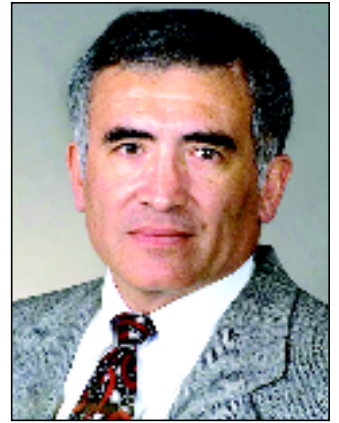
Welch Salary Analysis update

To keep you informed about the progress of ongoing Welch Salary Analysis efforts, I am providing this update.

Employees who mailed comp@lanl.gov by March 5 requesting personal data used in the Welch Salary Analysis, a review of their salaries or both, received that information late last week.

As we committed in a previous update, the Welch Salary Analysis has been rerun to include part-time regular and limited-term employees and an additional year (2002) of ORC scores. A database cutoff date of Sept. 29, 2003, was used consistent with the previous analysis. Additional salary adjustments are indicated for approximately:

- 40 part-time regular and limited-term employees,
- 70 full-time regular employees who did not previously receive salary adjustments as a result of the Welch Salary Analysis and,
- 320 full-time regular employees who previously received salary adjustments as a result of the Welch Salary Analysis and will receive additional salary increments.



Richard Marquez

Salary adjustments for impacted employees will appear on paychecks May 27 and will be retroactive to Dec. 22, 2003. In the near future, managers will be provided guidance for apprising employees who are to receive Welch Salary Analysis salary adjustments. We will provide more information about these salary adjustments in my next update.

Employees in part-time and limited-term status on Sept. 29, 2003, will have until 5 p.m. June 18 to request personal data used in the Welch Salary Analysis, express salary concerns, or both by accessing http://dominoapp.lanl.gov/eSurveyor4/salary_analysis.nsf/respond online.

These inquiries will be addressed in the same manner as previous requests from other employees.

To the extent possible, determinations of eligible requests for salary reviews by the special review committee will be completed by June 30.

A description of the Welch Salary Analysis can be accessed at <http://int.lanl.gov/features/faqs.shtml> online.

Nanos tours UNM, pitches Laboratory's student programs



Laboratory Director G. Peter Nanos meets with graduate and undergraduate students at the University of New Mexico's department of physics and astronomy. Nanos was visiting the UNM campus to meet with the state's budding scientists, to talk about the programs available at the Laboratory for students and post docs, to let them know about the wide variety of research at Los Alamos, and to encourage them to consider a career in science and public service. Following his time with the students Nanos also met with UNM President Louis Caldera. During his visit to the UNM department of physics and astronomy, Nanos toured the facility's optics lab with UNM professor Mansoor Sheik-Bahae, who explained to Nanos a collaborative research project on laser cooling technology that UNM is doing with Los Alamos National Laboratory. In addition to visiting UNM, Director Nanos, along with Sandia National Laboratories President Paul Robinson were interviewed by Kate Nelson, the host of KNME-TV's "In Focus" program. The program aired April 30 and again May 2. Both Nanos and Robinson talked to Nelson about recruitment and retention of key staff at their respective institutions and some of the educational outreach programs at the labs designed to attract young students to science. They also participated in a bit of show and tell with some the laboratories' latest anti-terrorism technologies. Photo by Kevin Roark



University of California best top-ranked university at enrolling low-income students, study says

Six University of California campuses enroll more low-income students than any other top university in the country, public or private, according to a new national study.

The study by Tom Mortenson of Postsecondary Education Opportunity, a national newsletter on access to higher education, looked at the top 50 national universities as ranked by U.S. News & World Report and ranked them according to the number of Pell Grant recipients they enrolled. Recipients of Pell Grants come from low-income families whose earnings are usually below \$35,000 a year.

The six UC campuses that made the U.S. News & World Report list fill all the top slots in Mortenson's study. UCLA enrolled the highest percentage of low-income students in the nation, with 35.1 percent of its students qualifying for Pell Grants. UC Berkeley follows, with 32.4 percent; UC Irvine is third with 31.5 percent; UC Davis, fourth with 28.5 percent; UC San Diego, fifth with 28.3 percent; and UC Santa Barbara, sixth with 24.8 percent.

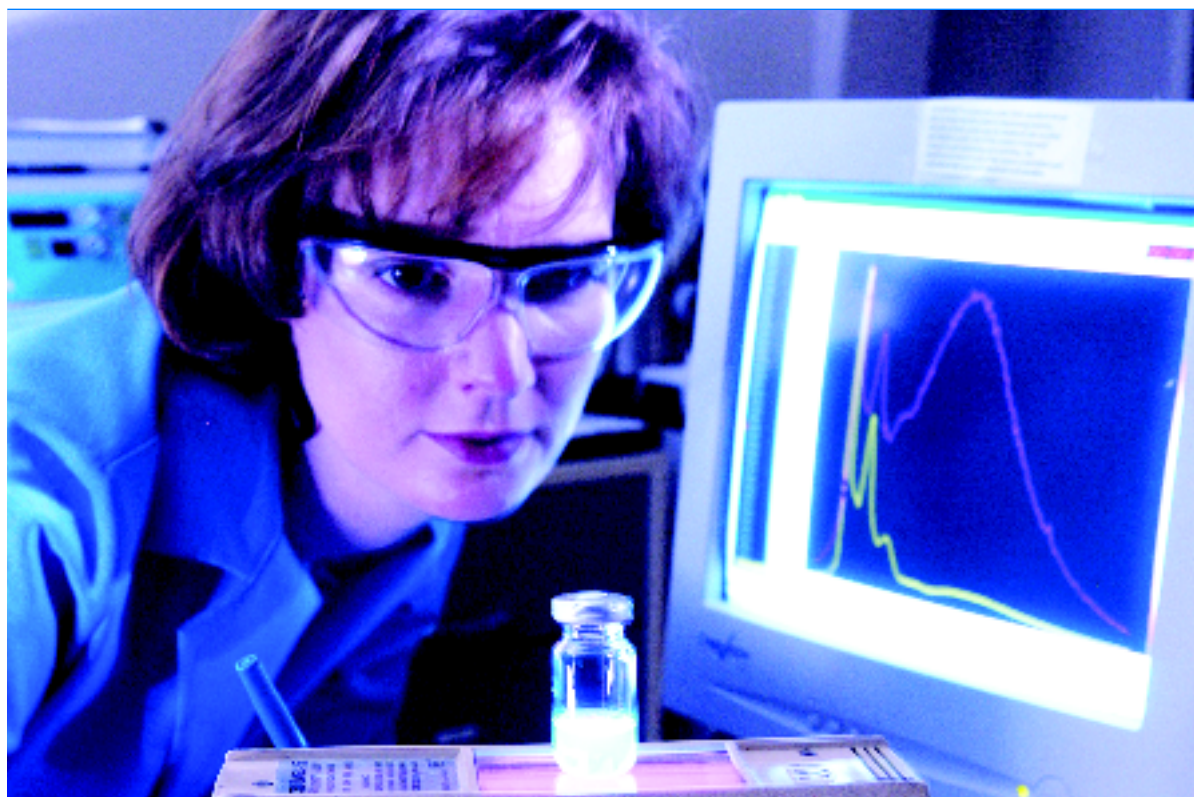
UC's own analyses reveal that its other two undergraduate campuses also enroll high percentages of low-income students: UC Riverside (40.9 percent) and UC Santa Cruz (26.7 percent).

Mortenson's study supports the findings of a James Irvine Foundation report and subsequent UC analysis that showed UC has achieved its goal of remaining financially accessible to all the students it admits.

The University of California's success in this area has stemmed from the following:

- A strong state grant program: The state of California's commitment to low-income students through its Cal Grant Program, which until recent proposed budget cuts, guaranteed fee coverage for students attending UC.
- A strong institutional grant program: Until recent budget proposals, UC returned one-third of its new fee revenue to its financial aid programs.
- The California Master Plan for Higher Education: California students know that they will have a place in the state's higher education system, regardless of family income, if they prepare academically.
- Academic preparation programs: Award-winning academic preparation programs such as the Mathematics, Engineering, Science Achievement Program, Early Academic Outreach Program and Puente Project help build a college-going culture among low- and middle-income Californians.
- A focus on California resident students: Unlike many comparable public institutions, the University of California's mission and its state funding allow it to focus on serving the students of California rather than residents of other states who can afford out-of-state tuition.

For more information, see the UC news release at www.ucop.edu/news/archives/2004/apr28.htm online.



Sheila Baker, a postdoc in Actinide, Catalysis and Separations Chemistry (C-SIC), measures the temperature response of a fluorescent ionic liquid sample. Upon heating, the emission color dramatically switches, forming the basis for an ultrasensitive optical thermometer. For illustration, a volume of this sample excited with a handheld UV lamp is shown. Photo by LeRoy N. Sanchez

Laboratory scientists develop novel fluorescent thermometer

by Todd Hanson

Laboratory scientists have developed a fluorescent material that responds rapidly and reversibly to temperature. The material could be the basis for highly sensitive optical thermometers useful in biological monitoring and medical, industrial and security applications.

Although molecule-based optical thermometers have received a great deal of attention recently, most have limited operational ranges on the order of only a few degrees. The Los Alamos thermometer is accurate to one-tenth of a degree and responds to temperature changes ranging from 77 to 284 degrees Fahrenheit, giving it a wider temperature range than any existing fluorescent thermometer.

The new thermometer employs a luminescent molecule — a luminophore — within an ionic liquid. The smallest drop of the ionic liquid contains trillions of these individual molecular reporters. When the luminophores are illuminated with ultraviolet light, one of its components glows in the ultraviolet (375 nanometer) range of the visible spectrum and another component glows a different — blue — color near 475 nanometers. The relative intensities of these two bands of light changes dramatically with temperature, thereby creating a color that corresponds with specific temperatures.

According to Laboratory scientist Sheila Baker of Actinide, Catalysis and Separations Chemistry (C-SIC), "This kind of optical thermometer has the potential for use on so many scales large and small that we have only just scratched the surface of its countless possible applications. For example, when used in a manufacturing setting, the molecular thermometer's real-time monitoring capability may help to optimize industrial processing leading to waste minimization and energy conservation. On the microscale, this technology could be used for mapping temperature in lab-on-a-chip and microelectromechanical systems and for locating heat bottlenecks in integrated circuits. When coupled with flexible fabrics, a reliable bedside and battlefield temperature monitoring device could be created."

In addition to Baker, Los Alamos Frederick Reines postdoc Gary Baker of Spectroscopy, Imaging and Molecular Chemistry (B-4) and T. Mark McCleskey of C-SIC, worked on the development of the thermometer. The researchers currently are working to advance several promising applications, as well as encapsulating the material to create temperature-sensitive paints.

Communications Project yields ...

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McCumber also said that while the logo and UVP rollout portion of the Communications Project is complete, the project will continue from a continuous-improvement standpoint. "The UVP is one, albeit critical, but only one portion of the strategic communications plan, which is part of CER's business plan," said McCumber. "The plan's ability to adapt to the needs of the institution is critical to the successful implementation. This requires continuous feedback so that CER and the Information Management (IM) Division can better meet the communications needs of the institution."

An institutional process that encourages this type of feedback is being developed. In the interim, employees should send any suggestions or comments relating to the project to commplan@lanl.gov.

New Procurement organizational model developed

by James E. Rickman

The Laboratory's Procurement Improvement Project has accomplished a major milestone by developing a new organizational model for Procurement (SUP-1).

The Procurement Improvement Project is working to demonstrably improve the way the Laboratory purchases and delivers goods and services, said John Tapia, co-project manager for PIP. To achieve this goal, PIP is focusing on people, processes and tools related to procurement activities. The project is a continuation of the Laboratory's ongoing initiative to improve business processes.

The proposed restructuring of SUP-1 was a priority for the project and represents the culmination of weeks of work by personnel inside and outside the organization. Over the course of several design sessions, personnel in SUP-1, the Supply Chain Management (SUP) Division and elsewhere met to design a new organizational model by focusing on strategies, structures, processes, people and potential rewards — not only for SUP-1's stakeholders and clients, but for members of the group themselves, said Lynne Richards, level 2 manager for the people component of PIP and program manager for organizational development for the Lab.

"By embracing a rigorous process to design a new organizational structure and tackle issues associated with it, we were able to maximize benefits for all affected parties while remaining realistic in our goals and focus," Tapia said.

Participants originally developed three possible organizational models. They eventually settled on a final concept, which can be found at sup.lanl.gov/procurement/default.shtml online.

The new proposed model streamlines procurement activities and more closely associates them with division-level line management requirements, while creating enhanced management oversight for



Mike Boule of Procurement (SUP-1) examines an individual purchase request while dozens of others wait on his desk. Laboratory procurement specialists see a steady stream of requests each week ranging in value from hundreds of dollars to millions. Photo by James E. Rickman

procurement processes. More significantly, however, the new proposed model gets back to basics by creating specialists among procurement customer service representatives.

In the former model, procurement personnel were generalists, which sometimes led to situations in which representatives were overutilized or underutilized. The new model — coupled with process redesign, tool improvement and extensive training and development of the work force — will alleviate utilization issues and guarantee a high level of expertise for customers and clients, while improving the speed of transactions, Tapia said. It also gives customers a single point of contact.

"This reorganization will provide customers access to a larger pool of experts in critical procurement areas," said procurement team leader Pete Ayala (SUP-1). "A requisition will be handled by the procurement specialist most qualified and experienced in that area, and this is one way that this proposed restructuring makes our organization more effective and customer focused."

For SUP-1 personnel, the new model is designed to facilitate a team environment that will boost morale, enhance management support and provide greater opportunities for professional development.

Tapia said the organizational development process for SUP-1 would not have been nearly as successful without the design and facilitation skills of Richards, Janet

Langone of HR-Special Projects (HR-SP), and invaluable support from SUP-DO, SUP group management, SUP-1 team leaders, employees and other critical stakeholders.

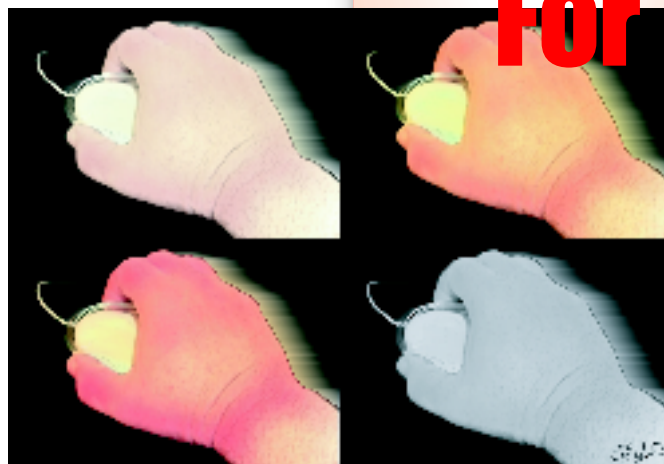
The organizational development of SUP-1 and its subsequent implementation is one of 11 major milestones identified under the Procurement Improvement Project.

Set your mouse free

Some people tend to hold on to their mice, trackballs or other input devices for dear life. It is a cognitive response for us to produce an action to get a reaction. At a traffic stoplight we rev the engine or hold tighter onto the steering wheel in hopes that the light will turn green faster.

The same is true with our computers. If a window on the computer is slow to open, we tend to squeeze the mouse or click more than is needed (once) to hurry the computer. It doesn't work for green lights and it doesn't work for computers. Relax.

Holding on to any object for long periods of time can result in decreased oxygen delivery to the muscles. It may result in fatigue and soreness and can lead to injury. The repetitive clicking of an input device can lead to the overuse of



tendons. How much is too much? If your hand/arms/shoulders get stiff and fatigued, it is "too much." Micro stretch breaks can help your body increase overall circulation and decrease fatigue.

Ergonomics is the science that helps you work smarter not harder. You can use an

For Your Safety

alternative input device that doesn't require you to hold onto a mouse or trackball. An example of these types of devices include the touch pad and the roller mouse.

So, the next time you are waiting for an application to appear on your computer screen, a window to pop open, a program to compile ... set your mouse (or other input device) free.

Use that time to stretch, take a deep breath and relax.

For more ergonomic-related tips, see the Laboratory's Ergonomic Web page at int.lanl.gov/safety/ergonomics/index.shtml online.

Eldorado team earns victory in 14th Adventures in Supercomputing Challenge

by Jim Danneskiold

Four intrepid young computer scientists from Albuquerque's Eldorado High School journeyed into the atoms that make up the human body and walked away with \$1,000 each as the top prize in the 14th New Mexico High School Adventures in Supercomputing Challenge at the Laboratory.

Daniel Appel, Jeffrey Dimiduk, Thomas Dimiduk and Ryan Shea worked all year to develop their project, "Atomistic Modeling of Biomolecular Interactions." Each won a \$1,000 U.S. Savings Bond, while their teacher, David Dixon, received a Hewlett-Packard computer for his classroom.

The Eldorado team created efficient, realistic techniques to model the long-range electrostatic interactions that help determine the structure and behavior of such motor proteins as kinesin, myosin and dynein, with potential applications to the design of nanoscale robots. The team, which was mentored by University of New Mexico professor Susan Atlas, also won the Cray High Performance Computing award.

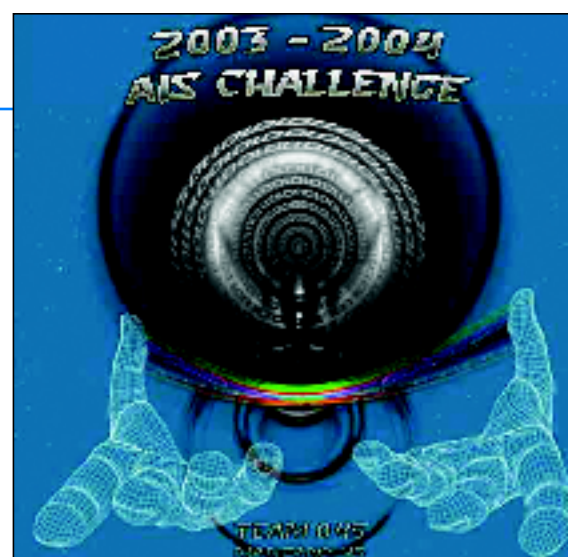
A trio of researchers from three different Albuquerque schools — Kellan Bethke, Sam Boling and William Laub from Manzano High School, the Public Academy for the

Performing Arts and Eldorado — took second place with their project, "Who Said That," in which they developed equations to train a computer to sort through a cacophony of voices and determine the source of different statements. Their work could be used to improve hearing aid performance, record negotiations or heated debates or aid in intelligence gathering.

They each received \$500 savings bonds and one of their teachers, David Dixon of Eldorado, received a combination fax, scanner and printer. The other teacher for the team was Steve Schum of Manzano, and Tom Laub of Sandia National Laboratories served as coach. The trio also captured the IBM Teamwork award and was presented with the Governor's First Annual Award for Excellence by Rep. Bobby Gonzales Jr., D-Taos.

Winner of the First Runner-Up Award was Santa Fe Preparatory School, for "Automated Theorem Proving in the Mathematica Language." The one-member team is Dylan Allegretti; his teacher and mentor is James Taylor.

The Second Runner-Up winner was Albuquerque Academy, for "Plasma Limits and Stresses Mesh Analysis." Members of that team are Jim Adolf, Zach LaBry, Josh Langsfeld, Ryan McGowan and Matt



Strange; their teacher is Jim Mims. The Academy team also received the Students' Choice Award.

Nearly 200 students on 45 teams spent the day presenting their research to a team of volunteer judges and setting up and discussing poster displays of their computing projects at the Los Alamos Research Park. They also took part in tours of Los Alamos' supercomputing centers and heard talks and demonstrations by Laboratory technical staff members. Students from 20 schools throughout New Mexico spent the last year researching scientific problems and writing programs to solve them on supercomputers at Los Alamos.

The goal of the challenge is to increase knowledge of science and computing; expose students and teachers to computers and applied mathematics; and instill enthusiasm for science in middle- and high-school students, their families and communities. Any New Mexico high school or middle school student is eligible to enter the Adventures in Supercomputing Challenge.

Rep. Ben Lujan, D-Santa Fe and Speaker of the New Mexico House, and his chief of

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WASTENOT-gram

Recycling transparencies

Laboratory employees collectively make thousands of presentations every year, and many of these presentations involve transparencies to show with overhead projectors. If you have transparencies from old presentations that you no longer need, you can easily recycle them. Simply place the transparencies in an interoffice envelope marked "MS A1000" and place it in the outgoing mail. The transparencies will be collected and sent to 3M Corp., where they will be reprocessed into new transparencies. Keep the transparencies separate from the mixed paper collections sent to MS A1000, because the paper is recycled at a completely different location through a completely different process.

To schedule an environmental evaluation or presentation for your office, contact Monica Witt of Environmental Applications (RRES-EA) at 7-8626 or mwitt@lanl.gov by e-mail. These recycling office visits are great for safety meetings, brown bag lunches, group meetings, etc.

If you have any suggestions or questions, contact wastenot@lanl.gov by e-mail.



State environment chief Curry visits Lab

New Mexico Environment Department Secretary Ron Curry, left, talks with Laboratory Director G. Peter Nanos and Acting Deputy Laboratory Director Carolyn Mangeng during a meeting at Los Alamos on May 4. Curry came to Los Alamos for discussions with Lab senior managers on state Environment Department issues. While at the Laboratory, Curry also toured several facilities and watched computer modeling and simulations at the Nicholas Metropolis Center for Modeling and Simulation at Technical Area 3. The visit to Los Alamos was arranged by the Government Relations Office (GRO). *Photo by LeRoy N. Sanchez*



Lab wins two NNSA pollution-prevention awards

Two Laboratory projects received 2004 Pollution Prevention Best-in-Class awards from the National Nuclear Security Administration. The winning projects from Los Alamos are "Formamide Replacement in Genetic Sequencing" by Lynne Goodwin and her team from Bioscience (B) Division and "Pollution Prevention at the Heavy Equipment Maintenance Shop" by John Keene and his team from KSL Services.

The process to determine the nucleotide sequence of DNA requires multiple steps and chemicals. Formamide is traditionally used to re-suspend DNA after denaturing, but formamide is a hazardous chemical with an unpleasant scent that could potentially harm a fetus. Goodwin and her team searched for a nonhazardous replacement for formamide; they discovered that substituting a water-based solution for formamide gave even better sequencing results.

Formamide was the only hazardous chemical associated with genetic sequencing, so eliminating formamide means that all of the sequencing waste is nonhazardous. This change substantially reduced the amount of paperwork involved with operations. Total annual savings on reduced waste disposal, procurement costs and labor are approximately \$78,000, according to Sonya Salzman of the Lab's Pollution Prevention team (RRES-PP).

The heavy-equipment maintenance shop at the Laboratory was recognized for an innovative project using a hot-water parts washer to clean dirty metal parts rather than solvent, said Salzman. This change reduces hazardous-waste generation, worker exposure to solvent and time spent cleaning parts. Another part of the project involved installation of stronger crimps on hydraulic-fluid hoses to reduce the incidence of leaks from heavy equipment. Fewer leaks correspond to less waste and less time spent cleaning up. Soil contaminated with spilled oil or hydraulic fluid is now handled in special bins behind the maintenance shop where oil-digesting bacteria remove all the oil and hydraulic fluid, Salzman explained. The cleaned soil can be used to help fill potholes.

The combined innovations reduce costs by more than \$130,000 annually and prevent the generation of about 15 metric tons of New Mexico special waste and 1,300 gallons of solvent every year.



Linton Brooks, left, National Nuclear Security Administration administrator, congratulates Lynne Goodwin and Kim McMurry, right, of Genomic Sequencing and Computational Biology (B-5) at a NNSA Pollution Prevention Awards ceremony last week in the J. Robert Oppenheimer Study Center at Technical Area 3. Next to Brooks is Laboratory Director G. Peter Nanos. Two Laboratory projects received 2004 NNSA Pollution Prevention Best-in-Class awards. The selected projects were "Formamide Replacement in Genetic Sequencing" by Goodwin and her team in B Division and "Pollution Prevention at the Heavy Equipment Maintenance Shop" by John Keene and his team from KSL Services.

Because all of the innovations implemented by the maintenance shop are easily transferable to other facilities, many of the ideas currently are being copied at other Department of Energy facilities, she said.

Salzman said the Lab will share the information with other autosshops in Northern New Mexico as part of its community outreach program. More information about these projects is available on the Pollution Prevention Web site at emeso.lanl.gov online.

Los Alamos Supercomputing Cluster software wins prize

by Jim Danneskiold

Researchers in the Advanced Computing Laboratory have been honored for their advances in connecting thousands of computers together to create clusters with much of the power of traditional supercomputers at a fraction of the cost.

Los Alamos' Clustermatic 4 software suite won top honors for Open Source Cluster Solution in the recent ClusterWorld Conference and Expo in San Jose, Calif. The winners were credited with developing technologies that have reshaped the information technology landscape and brought supercomputing power to a variety of new users.

"This is a wonderful and much-deserved recognition of the innovative work done by the Cluster Research team," said Bill Feiereisen, Computer and Computational Science (CCS) Division leader. "The Clustermatic 4 software includes a range of novel techniques that have for the first time been combined into a highly scalable clustering system. Clustermatic 4 is used widely by government, industry and academia, and it already is having broad impact on cluster computing."

The Advanced Computing Laboratory's Clustermatic project began four years ago to make it easier for scientists to link together off-the-shelf computer systems to create low-cost clusters that could plow through data at speeds approaching those of traditional supercomputers. The most recent version, Clustermatic 4, is an open-source collection of technologies that incorporate significant advances in scaling clusters to systems containing 2,000 or more processors. It was released in November 2003 and already is finding use in Los Alamos' Lightning supercomputer, an 11-trillion-operations-per-second Linux cluster.

Setting up clusters is extremely tedious and error-prone due to the inherent autonomy of the individual nodes and the huge scale

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Lab pollution-prevention award winners recognized

Loren Abercrombie, left, of Solid Waste and Regulatory Compliance (RRES-SWRC) accepts a 2004 Pollution Prevention Award on behalf of team members from Barb Stine, right, principal deputy for the associate director of operations, at the Lab's Pollution Prevention Awards ceremony in the Physics Building Auditorium at Technical Area 3. Tori George, an acting deputy project director for Risk Reduction and Environmental Stewardship (RRES) Division, is at center. Other members of the team include Larry Sherman, Paul Newberry and Alice Rodriguez of Solid Waste Operations (FWO-SWO), and Matt Shanahan and Dave LaLonde of Duratek Inc. Thirty projects received pollution prevention awards, which honor employee ideas and accomplishments that have reduced waste and saved money at the Lab. Photo by LeRoy N. Sanchez

Los Alamos ...

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of modern clusters. The Cluster Research team redesigned cluster system architecture starting from the low-level machine setup and extending to all aspects of system operation to increase reliability and efficiency and reduce autonomy. More information is available at public.lanl.gov/cluster/ online.

ClusterWorld magazine is dedicated to cluster-related topics; its Web site is www.clusterworld.com online.

Contributors to Clustermatic include **Ron Minnich, Sung-Eun Choi, Erik Hendriks, Matt Sottile, Greg Watson and Li-Ta Lo**, all of the Advanced Computing Laboratory.

Lab's Radioactive Liquid Waste Treatment Facility receives Environmental Excellence Award

The New Mexico Water and Wastewater Association recently recognized the Lab's Radioactive Liquid Waste Treatment Facility operators and management for its long history of protecting the environment with the association's Environmental Excellence Award for 2003.

"The Lab's operations team at the

Radioactive Liquid Waste Treatment Facility is honored to receive the 2003 Environmental Excellence award from the New Mexico Water and Wastewater Association," said **David Moss** of Waste Facility Management (FWO-WFM), team leader for the RLWTF operation. "With the support of Laboratory and Department Of Energy management and the upgraded treatment processes that have been brought online since 1999, the facility has demonstrated the capability to produce effluent water that is in compliance with all federal, state and DOE standards and guidelines."

The NMWWA, founded in 1956, is a non-profit association of professionals involved in the potable water and wastewater treatment industry in New Mexico.

The Radioactive Liquid Waste Treatment Facility, located in Technical Area 50, has provided treatment and disposal of the radioactive and chemical liquid waste generated by the Laboratory's scientific and national defense related activities for more than 40 years.

The Waste Facility Management group has received numerous awards including the 2001 U.S. DOE National Pollution Prevention Runner-Up Award, for upgraded treatment process; a Lab 2001 Pollution Prevention Award for upgraded treatment process; and a Lab 2003 Pollution Prevention Award for perchlorate reduction in effluent.

Eldorado team ...

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staff, Regis Pecos, presented the first- and second-place awards during ceremonies in the Laboratory's Physics Building Auditorium at Technical Area 3. Joe Watts of Actinide and Fuel Cycle Technologies (NMT-11) was master of ceremonies.

"The Adventures in Supercomputing Challenge provides high-school and junior-high students with the opportunity of a lifetime; the chance to run a program on a high-performance computer at one of the nation's premier institutions, Los Alamos National Laboratory," Watts said. "Beyond that, the challenge gives young minds obstruction-free interactions with a tremendous group of dedicated mentors that includes scientists, business leaders, educators and government officials. These mentors care deeply about young people and their educations, great science and the creation of a successful new crop of highly educated New Mexicans."

Reports by all the teams finishing the Adventures in Supercomputing Challenge can be viewed at www.challenge.nm.org/FinalReports/ online.

After sharing poster exhibits of their work in the Adventures in Supercomputing Challenge Expo, students and teachers chose two projects for special awards.

The best Graphic Poster Award, which will be the basis for next year's Challenge logo, Web page and T-shirts, went to Sean Gentry, Jamal Osman and Matt Tlush of Manzano High School, who shared a \$100 cash prize.

The Supercomputing Challenge was conceived in 1990 by former Laboratory Director Sig Hecker and Tom Thornhill, then president of New Mexico Technet Inc., a nonprofit company that in 1985 set up a computer network to link the state's national laboratories, universities, state government and some private companies. Sen. Pete Domenici, R-N.M., and John Rollwagen, then chairman and chief executive officer of Cray Research Inc., added their support. The Adventures in Supercomputing and the New Mexico Supercomputing Challenge merged in 2002 to create the Adventures in Supercomputing Challenge.

For more information and a list of all the winners, see the April 28 Daily Newsbulletin at www.lanl.gov/orgs/pa/newsbulletin/ online.

Sam Boling, William Laub and Kellan Bethke, left to right, garnered second place in the Adventures in Supercomputing Challenge. The computational science team from Albuquerque's Eldorado and Manzano high schools and the Public Academy for the Performing Arts Charter, or PAPA, was recognized for their project, "Who Said That," taking multiple voices and determining who said what. The students received \$500 savings bonds and their teacher received a combination fax, scanner and printer. Some 200 students from schools throughout New Mexico competed in the Adventures in Supercomputing Challenge. Photo by LeRoy N. Sanchez



PATENT AWARDS



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

Recently issued patent awards

Geothermal energy production with supercritical fluids

Patent No. 6,668,554 issued Dec. 30, 2003

Donald Brown of Geophysics (EES-11)

Photopolymerization-based fabrication of chemical sensing films

Patent No. 6,670,286 issued Dec. 30, 2003

Xiaoguang Yang of Advanced Information and Business Application Development (IM-8), and **Basil Swanson** and **Xian Xian Du** of Spectroscopy, Imaging and Molecular Chemistry (B-4)

Laser ignition

Patent No. 6,676,402 issued Jan. 13

James Early and **Charles Lester** of Detonator Technology (DX-1)

Technology for fabrication of a micro-magnet on a tip of MFM/MRFM probe

Patent No. 6,676,813 issued Jan. 13

Dennis Pelekhov, Peter Hammel and **Melissa Midzor** of Condensed Matter and Thermal Physics (MST-10); **Geoffrey Nunes Jr.** of Dartmouth College; and **Michael Roukes** of the California Institute of Technology

Speech processing using multiple observable maximum likelihood continuity mapping

Patent No. 6,678,658 issued Jan. 13

John Hogden of Modeling, Algorithms and Informatics (CCS-3) and **David Nix** formerly of the Laboratory

Meniscus membranes for separation

Patent No. 6,681,648 issued Jan. 27

Robert Dye and **Betty Jorgensen** of Materials Dynamics (DX-2) and **David Pesiri** of Polymers and Coatings (MST-7)

Method for producing metallic nanoparticles

Patent No. 6,689,192 issued Feb. 10

Jonathan Phillips of Weapons Materials and Manufacturing (ESA-WMM) and **William Perry** of DX-2

Crystalline rare earth activated lutetium oxyorthosilicate phosphors

Patent No. 6,689,293 issued Feb. 10

Kenneth McClellan and **David Cooke** of Structure/Property Relations (MST-8)

Catalyst inks and method of application for direct methanol fuel cells

Patent No. 6,696,382 issued Feb. 24

Piotr Zelenay, John Davey, Xiaoming Ren and **Sharon Thomas** of Electronic and Electrochemical Materials and Devices (MST-11) and former Laboratory employee **Shimshon Gottesfeld**



Workers turn out in force to clean up



Above: Richard Trout, left, Larry Bays, of Facilities and Waste Operations (FWO) Division, and Francis Humbertson of KSL Services, pick up litter during the lunch hour on East Jemez Road near the Royal Crest Mobile Home park. The three participated in the Great Garbage Grab beautification event, which continued through April 30. The litter clean-up and beautification was held in conjunction with National Volunteer Week and the Lab's celebration of Earth Day. The events were sponsored by the Risk Reduction and Environmental Stewardship (RRES), Facilities and Waste Operations (FWO) and Communications and External Relations (CER) divisions. Photo by Mike Kolb

At right: Facilities and Waste Operations (FWO) Division Leader Tony Stanford, right, joined other FWO employees in picking up trash from around Technical Area 63. FWO is one of the co-sponsors of the Great Garbage Grab. With Stanford is Debbie Lewis of Integrated Business Systems (FWO-IBS). Photo by Michelle Roybal

Employees from across the Laboratory helped beautify the areas in which they work by participating in the Lab's first Great Garbage Grab. The two-week event last month resulted in about 600 bags of trash being picked up from technical areas Labwide. The litter clean-up and beautification was held in conjunction with National Volunteer Week and the Lab's celebration of Earth Day last month. The Facilities and Waste Operations (FWO) Division won the "Traveling Trash Trophy" (at left) for picking up the most litter. The event organizers hope to make the litter clean up and beautification event an annual event.



Employees in Materials Science and Technology (MST) Division used the first annual Great Garbage Grab at the Lab to do some spring cleaning as evidenced by boxes of materials and equipment gathered in an outdoor area at Technical Area 3. Personnel from KSL Services pitched in to help process items for salvage and recycling. At left is Raeanna Sharp-Geiger of MST. Center is Patrick Sullivan of Property Management (SUP-2) with Darryl Garcia of Solid Waste Operations (FWO-SWO). Photo courtesy of MST Division



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