



Discover LLNL

The Community Newsletter of Lawrence Livermore National Laboratory ♦ ♦ ♦ Spring 2003

East Avenue Upgrade

LLNL and Sandia have begun construction on a project that will provide security enhancements to the East Avenue corridor between the two laboratories.

A design developed jointly by LLNL and Sandia will create vehicle and pedestrian control entrances at both the Vasco Road and Greenville Road ends of the East Avenue corridor.

The project will also include widening portions of East Avenue, installing control point kiosks, embedding pop-up barriers in the roadway, and building a transfer area on the Sandia property at the southwest corner of Vasco Road and East Avenue. The transfer area will consist of a "super kiosk" for badging and permits, visitor parking, and stops and turn-arounds for public and laboratory buses.

A truck inspection station will also be built on the LLNL side of East Avenue near Greenville Road for the inspection of trucks making deliveries to both LLNL and Sandia.

Consideration to controlling access to East Avenue between the two laboratories is not new, but the issue became a high priority following the events of September 11, 2001.

Completion of the project is expected this summer.

Some minor traffic delays may be experienced during the height of road construction. Access to the corridor will then be limited to official LLNL, Sandia, contractor, NNSA and DOE badge holders, or individuals on an authorized access list.

Questions on the East Avenue security upgrade project? Contact the LLNL Public Affairs Office at 925-423-3567. ♦



This rendering shows the transfer area portion of the East Avenue construction project, which will provide enhanced security along the corridor.

Hall of Fame

LLNL scientists Claire Max and Ellen Raber were recently inducted into the Alameda County Women's Hall of Fame during a special luncheon ceremony.

Max and Raber were two of nine inductees honored at the 10th annual event.

Max was singled out for

her work in the field of adaptive optics, and Raber was singled out for her achievements in pollution prevention, waste management, environmental restoration, and environmental monitoring and analysis. ♦



Claire Max and Ellen Raber (left to right) were recently inducted into the Alameda County Women's Hall of Fame.

Security Measures

With the commencement of the United States' involvement in Operation Iraqi Freedom, and the U.S. Department of Homeland Security's subsequent

order to raise the national threat level to Condition Orange (High), LLNL has taken steps to elevate its own security posture.

Though there has been no specific threat against the Laboratory, site security will be maintained at a high-

er level, or Security Condition 2, for the foreseeable future. In addition, the Livermore Police Department, in coordination with the Laboratory's security force, has increased the frequency of its patrols around the Laboratory main site. ♦

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Computer Simulations

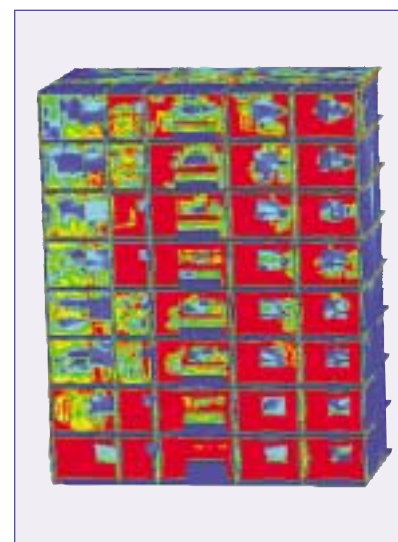
LLNL engineers, utilizing advanced computer simulation capabilities, are studying the performance of structures under blast conditions, and exploring ways to help mitigate the effects of bomb blasts on building infrastructures.

These advanced simulations, performed at both LLNL and the U.S. Army Engineering Research and Development Center, were highlighted at this year's annual meeting of the American Association for the Advancement of Science (AAAS) as part of a security technology symposium. The simulation technology was originally developed by researchers in the Department of Energy's Defense Programs at LLNL and Sandia national laboratories. Some

of these technologies have already found wide acceptance in non-defense uses, such as for crash safety simulation in the automobile industry.

Research is also being conducted on ways to prevent a building from progressive collapse similar to what occurred after the 1995 bomb explosion at the Murrah Federal Building in Oklahoma City, Oklahoma. Additionally, engineers are working on mitigation strategies for new and existing buildings in order to minimize occupant injuries following a blast, and to keep structures safe from collapse long enough to enable search and rescue teams to be effective.

More information on the AAAS annual meeting and this symposium can be found at www.aaas.org. ♦



Computer simulation of an apartment building response to a bomb blast. Areas in red indicate high damage.

Artificial Retina

LLNL's Center for Microtechnology is contributing to a multi-laboratory Department of Energy (DOE) project to construct an artificial retina or 'epiretinal prosthesis.'

An epiretinal prosthesis could lead to restored vision for millions of people suffering from eye diseases such as retinitis pigmentosa or macular degeneration. It could also help those who are legally blind due to the loss of photoreceptor function.

LLNL engineers with expertise



LLNL's polymer-based microelectrode array.

in biomedical microsystems are leading the Center's efforts to develop a "flexible microelectrode array" that is able to conform to the curved shape of the retina without damag-

ing delicate retinal tissue, and which can integrate the electronics necessary for it to serve as an interface between an electronic imaging system and the human eye.

This three-year DOE project is a collaboration of Lawrence Livermore, Oak Ridge, Argonne, Sandia, and Los Alamos national laboratories, the USC Doheny Eye Institute, and North Carolina State University. Additional information on the epiretinal prosthesis is available on the Web at:

[http://www.energy.gov/HQPress/releases02nov pr/pr02248.htm](http://www.energy.gov/HQPress/releases02nov/pr/pr02248.htm). ♦

Super Science

Since November, LLNL's Public Affairs Office has been hosting local fourth and fifth grade classes to *Super Science*, a field trip to the Laboratory's Discovery Center that sparks excitement about science.

One component of the *Super Science* visit is a Fun with Science presentation conducted by a Laboratory employee. Each presenter, be they a scientist, engineer, or technician, brings an expertise that lends itself well to conducting experiments and explaining basic scientific concepts and theories to students. In addition, they convey that science is not limited to a laboratory, but is present in every aspect of life.

We asked two Fun with Science presenters to comment on their work with students in the *Super Science* program, and in particular what they hope to impart to the young people they meet.

Reggie Gaylord is a Deputy Program Leader for LLNL's Chemistry Environmental Services Group in the Chemistry and Materials Sciences Directorate.

Gaylord reflected, "I remember getting excited about science when I was about 8 years old. I would read old chemistry books, and try to repli-

cate the experiments that I read about (I occasionally set the house on fire, but was always able to put it out!) Then, when I was in 8th grade, I had a science teacher who let me stay after school to do electricity experiments. I've been hooked on experimental science ever since."

"Students ages 8 to 12 are a great group for teaching about science," said Gaylord. "They are excited by anything you show them, and are innately curious. Plus, they often ask the best questions. I know from my own experience that seeing a science principle in action makes learning far more solid and productive."

Mike Revelli is a Chemist who currently works in LLNL's Environmental Protection Department.

"Students and teachers enjoy and appreciate these programs," said Revelli. "Feedback has been very positive. The program reinforces and builds on classroom science curriculum. And *Super Science* gives stu-



Reggie Gaylord and a student take part in a Fun with Science demonstration.

dents an opportunity to meet and talk with 'real' LLNL scientists."

"Students are generally inquisitive, enthusiastic and candid, and I enjoy sharing their sense of 'discovery'. You know the students are interested when they ask, "Can we do that at home?"

More than 1000 students have participated in *Super Science* this school year. If you would like to learn how your child's class can experience *Super Science*, please contact Linda Lucchetti in the Public Affairs Office at (925) 422-5815. ♦

Discovery Center

LLNL's visitors center has a new name and a new look. The new Discovery Center is divided into three distinct zones representing the major areas of the Laboratory's mission: the Safety, Reliability and Performance of the U. S. Nuclear Stockpile; Homeland Security and the War on Terrorism; and Science and Technology in the National Interest.

Come learn about LLNL advances in the fields of high-performance computing, the biosciences, engineering, physics, medical technologies, energy and the environ-

ment, and much more. Sights and sounds of the Laboratory's past are also on display in a unique video viewing area inside a small replica of the National Ignition Facility target chamber. You can also take in an historical exhibit on the life of LLNL's namesake, Ernest O. Lawrence.

Located off Greenville Road at the Laboratory's East Gate Drive entrance, the Discovery Center is open Monday through Friday from 1:00 to 4:00 p.m. Everyone is welcome. No badging is necessary.

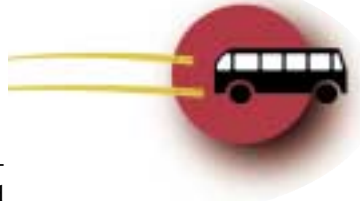
For further information contact Discovery Center coordinator Linda Lucchetti at (925) 422-5815. ♦



The Discovery Center has recently been redesigned to represent the major areas of the Lab's mission.

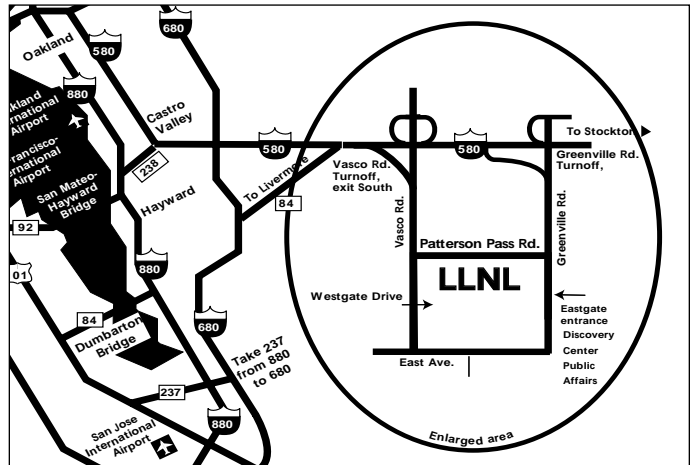
Take a Tour

The Laboratory's Public Affairs Office offers a tour of LLNL that includes stops at the Biology & Biotechnology Research Program, the National Atmospheric Release Advisory Center, the Center for Accelerator Mass Spectrometry, and the National Ignition Facility which will soon house the world's largest and most powerful laser.



This free, two-hour tour is offered on Tuesdays and Thursdays starting at 9:00 a.m. U.S. citizens must register at least two weeks in advance. Non-U.S. citizens must register at least sixty days in advance. Special tours can be arranged for groups of eight or more with two weeks' advance notice. Tour participants must be at least 18 years of age.

For more information on the tour program go to www.llnl.gov/pao, or call 925-424-6575. ♦



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If you would like to be included in the distribution of Discover LLNL, please contact Scott Wilson or call (925) 423-3125.

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"Ensuring national security and applying science and technology to the important problems of our time."

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