



Discover LLNL

The Community Newsletter of Lawrence Livermore National Laboratory ♦ ♦ ♦ Spring 2005

Lab Celebrates World Year of Physics 2005

The Laboratory is continuing its celebration of World Year of Physics 2005 with a number of upcoming community events and activities.

Community recognition will begin in May with a Year of Physics banner over 4th Street in Livermore. A

special Discovery Center exhibit on physics and the life of Albert Einstein has also been unveiled.

Other upcoming events include the 2nd annual 'Got Science? Discover Science Saturday' event at the Laboratory's Discovery Center on Saturday, June 25. The event will run from 10 a.m. to 2 p.m. This family extravaganza of entertainment, exhibits and hands-on science activities is free to the general public.

To learn more about all of the Laboratory's World Year of Physics community activities visit www.llnl.gov/pao/WYOP. ♦



Looking at the life of Madame Curie

The Laboratory is pleased to welcome writer, actor, and storyteller Susan Marie Frontczak to

Livermore for a one-woman performance on the life and achievements of Madame Marie Curie (née Maria Sklodowska) at the Livermore High School Theater on **Monday, May 23**. The program will run from 7 to 9 p.m., and is free to the general public. Seating is on a first-come, first-served basis.

Likely the world's most famous woman scientist, Madame Curie is renowned for her discovery of radium and radioactivity. Through collaboration with the medical community, Madame Curie and her husband Pierre discovered and established the first successful radiation treatments of cancer. She was also the first recipient of two Nobel Prizes. ♦



Crawford inducted into Alameda County Women's Hall of Fame

Computation Associate Director Dona Crawford was inducted into the Alameda County Women's Hall of Fame in March.

Crawford received her award in the science category. She was honored for her work and leadership in establishing the world's fastest supercomputer, Blue Gene/L, at LLNL. Blue Gene/L is being built in collaboration with IBM for the National Nuclear Security

Administration's Stockpile Stewardship efforts.

Blue Gene/L capabilities will be used to ensure the safety and security of the nation's nuclear stockpile, and will also be vital to scientific research in such areas as chemistry, physics, engineering and materials science.

Crawford was also recog-



Dona Crawford

nized for her involvement in promoting math and science careers for young women in the Tri-Valley area through her participation in community outreach activities such as the Expanding Your Horizons conferences, the Go Figure Math Competition and high school achievement awards. ♦

BlueGene/L leads the pack in computing

LLNL's BlueGene/L supercomputer, developed through the Laboratory's Advanced Simulation and Computing program for the National Nuclear Security Administration's (NNSA) Stockpile Stewardship efforts, has set another milestone by performing 135.3 trillion floating operations per second (or teraflops/s). This total sets BlueGene/L apart as by far the fastest supercomputer in the world.

While still being installed in the Laboratory's Terascale Simulation Facility, BlueGene/L was



Pam Hamilton of Computation and Mark Campana of IBM examine the first racks of BlueGene/L installed in the TSF.

able to perform this feat at only fifty percent capacity. When fully installed this spring, BlueGene/L is expected to achieve 360 teraflops/s.

"BlueGene/L's latest accomplishment is an important step toward achieving the capabilities we need to succeed in our stockpile stewardship mission," said Laboratory Director Michael Anastasio.

By performing computations at these rates, BlueGene/L will help NNSA maintain the U.S. nuclear weapons stockpile without the need for nuclear testing.

BlueGene/L was developed in partnership with IBM. ♦

ETEC leader to head state science council

Stan Hitomi, executive director of the University of California's Edward Teller Education Center (ETEC) on the Laboratory campus, has been selected to serve as chair of the newly formed California Teacher Advisory Council (CalTAC).

CalTAC is an effort led by the California Council on Science and Technology and the Center for the

Future of Teaching and Learning to strengthen mathematics and science instruction in California.

Hitomi, a former high school science teacher, will lead a council charged with informing and guiding the development of policies and practices to strengthen the quality of mathematics, science and technical education in California and provide

guidance in the analysis of California's K-14 teacher development system.

ETEC is located at LLNL and shares facilities with the University of California at Davis

Department of Applied Science. It is a collaborative education partnership established by the University of California Office of the President to enhance the quality of science & technology instruction in California schools.

To learn more about CalTAC go to www.cftl.org or www.ccast.us.

More information on ETEC can be found at <http://etc.ucdavis.edu/>. ♦



Stan Hitomi

Daffodil Days bloom again



LLNL employees collect their daffodil orders during the American Cancer Society's annual "Daffodil Days" event in March. In all, employees purchased more than \$30,000 worth of daffodils this year, the largest contribution to "Daffodil Days" in Northern California.

Tri-Valley Science and Engineering Fair success

Some 260 local students in grades 7 through 12 took part in the 9th annual Tri-Valley Science and Engineering Fair at the San Ramon Conference Center in March. LLNL is the major organizing sponsor of the Fair.

Entrants competed for cash prizes and awards, and seniors vied for an opportunity to enter their project in the Intel International Science and Engineering Fair in Phoenix in May.

This year's Senior Division Sweepstakes winners were Mina Bionta, an eleventh grade student from Livermore High School with a project entitled "The Sun's Big Bang in January 2005," and Wesley Hong, a tenth grade student from Foothill High School in Pleasanton with a project called "Cyclodextrin-Based Nanoporous Polymers: A Filtration Agent for Organic Contaminants-Year 2." In addition to a slot at the Intel International Fair, they were also each awarded a \$350 gift certificate.

Junior Division Sweepstakes win-

ning projects included one in the team category that involved a proximity activated dog feeder, or "Dog-e-Diner." Team members Max Simmons and Brisk Kannel from Livermore's Our Savior Lutheran School each received a \$250 gift certificate.

Other Junior Division winners were Justin Riordan from Iron Horse Middle School in San Ramon with a project on gliders, and Vicki Hsieh from Pine Valley Middle School in San Ramon with a project on rotary power. They each received a \$350 gift certificate.

Project categories included such fields as biochemistry, botany, chemistry, computer science, earth and space science, engineering, environmental science, mathematics, and physics.

More than 170 local volunteers from academia, industry, and the



Vicki Hsieh, an eighth grade student from Pine Valley Middle School in San Ramon, discusses her project "More Rotors, More Motors, More Power?" with project judge Arden Dougan of the Lab. Hsieh's exhibit won her a spot in the junior sweepstakes category.

Laboratory served as fair judges.

Other organizing sponsors included the Tri-Valley Business Council, Pacific Gas & Electric Co., The Valley Times, the Tri-Valley Community Foundation and ChevronTexaco. ♦

The 'next-generation' truck stopping device

LLNL recently unveiled the "next generation" of its truck stopping device designed to protect sensitive facilities from hijacked tankers and other similar vehicles.

The development of the truck stopping device was supported by the California Highway Patrol and the California Energy Commission. This latest device utilizes remote control technology which can disable the brake system by radio signal from either an electronic gate, fence or by a remote-control button. The radio signal activates a device that can be mounted on the truck while it is at a facility. The device would use a system of antennae placed around various buildings.

"This is a great way for facilities

that have trucks routinely coming on site to add a layer of protection," said David McCallen, one of the LLNL developers of the technology.

This device marks the fourth generation of the truck stopping technology first advanced by the Laboratory more than a year ago.

The initial technology required that a highway patrol car tap the rear bumper of a truck triggering a



The remote control truck stopping device is demonstrated for the local news media at the Lab.

"guillotine" mechanism that would shear the air brake line and stop the vehicle. ♦

What's new at the Discovery Center

A new exhibit was unveiled at the Discovery Center in May. In recognition of World Year of Physics 2005, this new exhibit highlights the history of physics, key physics landmarks at LLNL, and the life and accomplishments of Albert Einstein.

This year's international recognition of physics is being held in conjunction with the 100th anniversary of what has been described as Einstein's "mirac-


ulous year" of 1905, when he published groundbreaking scientific papers that set the course of modern-day physics. A number of hands-on, interactive displays demonstrating physics principles accompany the exhibit.

This and more is waiting for you at the Discovery Center. Located off Greenville Road at East Gate Drive, the Discovery Center is open Monday through Friday, 1 to 4 p.m. and Saturdays from 10 a.m. to 2 p.m. ♦

Discover LLNL is a publication of the Public Affairs Office at Lawrence Livermore National Laboratory.

If you would like to be included in the distribution of *Discover LLNL*, please contact Scott Wilson, wilson101@llnl.gov, or call (925) 423-3125.

Lawrence Livermore National Laboratory is a Department of Energy, National Nuclear Security Administration laboratory managed by the University of California.



GOT SCIENCE?

Discover Science Saturday

In honor of the **World Year of Physics**, join a family extravaganza of fun-filled activities highlighting the Lab's science and technology.

Saturday, June 25
10 a.m. – 2 p.m.

at the Laboratory's Discovery Center (off Greenville Road)
For more information call 925-422-4599.
Free admission, and families are welcome.

http://www.llnl.gov/pao/com/got_science.html

Lawrence Livermore National Laboratory
Public Affairs Office
Community Relations
P.O. Box 808, L-797
Livermore, CA 94551

