

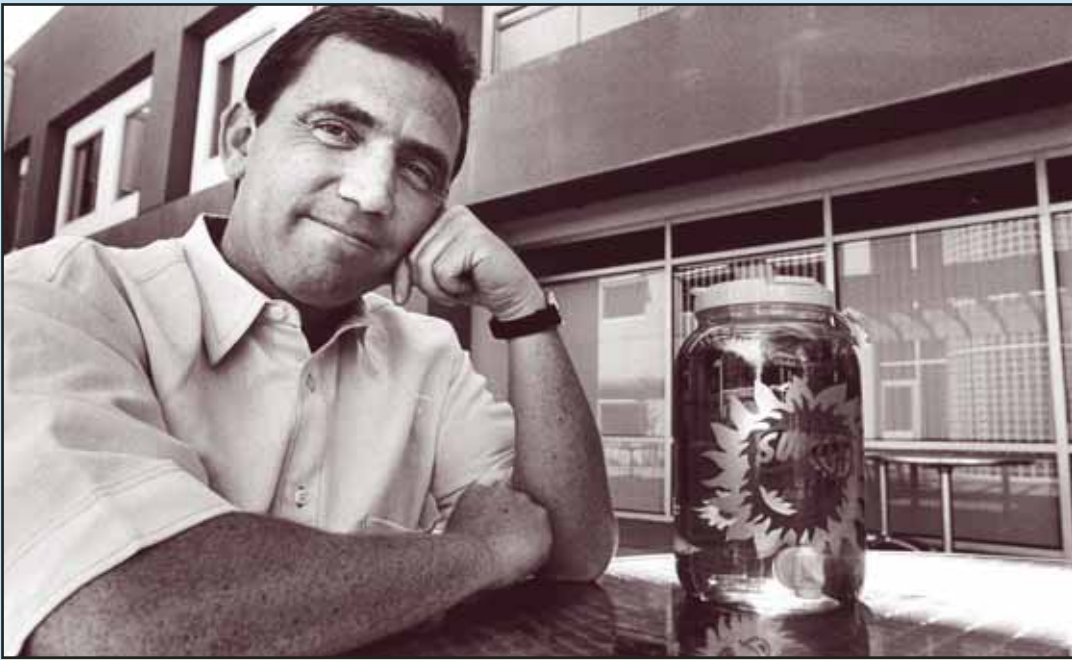
# NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

Friday, October 7, 2005

Vol. 30, No. 39

## Santer recognized for climate work



Climate scientist Benjamin Santer recently won the Office of Biological and Environmental Research Program's Distinguished Scientist Fellowship.

By Anne M. Stark

NEWSLINE STAFF WRITER

Human-induced climate change is likely to be one of the major environmental problems of the 21st century, and effective policies to mitigate human effects on climate will require sound scientific information.

Providing that information is what climate scientist Benjamin Santer hopes to continue doing as the Lawrence Livermore National

Laboratory's winner of the Office of Biological and Environmental Research (BER) Distinguished Scientist Fellowship.

Santer, who is well renowned in the climate change research community and has contributed to several reports of the Intergovernmental Panel on Climate Change, has worked in the Laboratory's Program for Climate Model Diagnosis and Intercomparison (PCMDI) for 13

See **SANTER**, page 3

## Real-time biodetection and NIF early light teams earn science and technology awards

By Anne M. Stark

NEWSLINE STAFF WRITER

A group of researchers that developed a device that can identify harmful biological particles in real time and the team that achieved the National Ignition's early light are this year's winners of the sixth annual Laboratory Science and Technology Awards.

Laboratory Director Michael Anastasio and Deputy Director for Science and Technology Cherry Murray handed out the awards Monday during a ceremony and reception in the Bldg. 453 auditorium.

"I really believe in the Science and Technology Awards," Anastasio said. "This is a wonderful way to give recognition across the Laboratory for truly outstanding accomplishments. It's an opportunity for us to say thank you from the Laboratory for the hard work you do. You are the ones who are out in front and make real things happen."

Established in 2000 by then-director Bruce Tarter and then deputy director for science and technology, Jeff Wadsworth, the Lab's Science and Technology Awards are given annually for notable achievements. Recipients are selected by the senior management and in addition to recognition, receive a monetary award and memorabilia.

The group led by principal investigators Eric Gard of Chemistry and Materials Science's Chemical Biology and Nuclear Science Division, Matthias Frank of the Physics and Advanced Technologies' M Division and Engineering's Vincent Riot, developed

See **S&T AWARDS**, page 7

## Lab starts FY06 under continuing resolution

As reported in *NewsOnLine* earlier this week, the Lab has begun FY2006 under a continuing resolution that funds operations through Nov. 18.

"We've been here before," said Director Michael Anastasio. "This continuing resolution allows for funding of ongoing DOE/NNSA total operations at a rate of spending that's somewhat lower than the 2005 budget and our proposed 2006 budget," he said.

Should the budget not be established by Nov. 18, Congress will provide another continuing resolution to continue operations.

"There are still a number of federal budget questions pending that will need to be resolved in conference. But now, with the federal aid that will

See **BUDGET**, page 8

## Stargazers unify observation effort

By Anne M. Stark

NEWSLINE STAFF WRITER

Amateur stargazers were vital to a recent mission of LLNL astrophysicists Christopher Mauche, Duane Liedahl, Diego Torres and a group of professional astronomers when they made an intensive series of multi-wavelength observations of the mysterious binary star system AE Aquarii.

In a binary star system, two stars orbit each other around a mathematical point called the center of mass. In the AE Aquarii binary, the stars are a normal low-mass star like the sun and



A magnetic cataclysmic variable star system.

a white dwarf, a compact star with a mass comparable to that of the Sun and a radius comparable to that of the Earth. The two stars are so close together in AE Aquarii that the orbital period is just 10 hours. The low-mass star is distorted by the gravity of the white dwarf into a tear-drop shape and plasma flows out of the low-mass star toward the

white dwarf.

The unique features of AE Aquarii are the extreme properties of its white dwarf, whose spin

See **ASTRONOMERS**, page 8



Retiree  
tours

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DDLS provides view  
of the dark side

— Page 3



HOME  
prepares for  
record run

— Page 5



## LAB COMMUNITY NEWS

### Weekly Calendar

#### Technical Meeting Calendar, page 4

Saturday  
**8**

The 2005 HOME (Helping Others More Effectively) Campaign will sponsor the fourth "At HOME in the Community" activity from 9-11 a.m. at the Tracy Animal Shelter, 370 Arbor Road, Tracy, where "People for Pets" and volunteers will walk dogs. For more information, call Chelle Clements, 3-8134.

Tuesday  
**11**

Physicist J. Anthony "Tony" Tyson will deliver a **Director's Distinguished Lecturer Series** presentation entitled "Petabytes from the Sky: The Puzzle of Dark Energy," at 3:30 p.m. in the Bldg. 123 auditorium. The presentation will be rebroadcast on Lab TV Channel 2 Thursday, Oct. 20, 10 a.m., noon, 2, 4, and 8 p.m. and Friday, Oct. 21, 4 a.m. See page 3 for more information.

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In celebration of the World Year of Physics 2005, DOE's Office of Science is co-sponsoring a television docudrama, "**Einstein's Big Idea**," from 8-10 p.m. on PBS (KQED), with repeat broadcasts on Oct. 13 at 3 a.m. and Oct. 16 at noon. The NOVA presentation, based on David Bodanis' bestseller, " $E=mc^2$ " examines the 100-year history of the world's most famous equation and the countless ways it has changed the world. For more information, go to the Web at [www.pbs.org/nova/emc2](http://www.pbs.org/nova/emc2)

...

Wednesday  
**12**

The "**Run for HOME**" kicks off the Lab's annual HOME Campaign at noon. The race starts at the Z-3 parking area west of Bldg. 132. The HOME Fair features agencies listed in the campaign and takes place from 11:30-1:30 in parking lot Z-1. All employees are welcome. For details and a map, see page 5.

### RETIREES' CORNER

**Art Krakowsky** (Electronic Engineering, 1993) and wife Carol took two granddaughters on a two-week Elderhostel tour of Greece, followed by a five-day home stay. They toured with 14 other grandparents and 16 other 13-15-year-old grandchildren. The tour included lectures, dance lessons and a sampling of all sorts of wonderful Greek food and music. The grandchildren performed an ancient play written by Aristophanes. The tour included many famous archaeological sites and museums including Athens, Olympia, Delphi and Thessaloniki. Most participants climbed Mt. Olympus (home of the Greek gods) and the group ended the tour with four days aboard nine sailboats, cruising, swimming and visiting several Greek islands.



**Ron** (Mechanical Engineering, 1990) and **Barbara Hill** (Mechanical Engineering, 1993) have been volunteers at the Lab's blood drives for the past five years. They are tremendously impressed to know that Lab employees donate more blood than any other organization in Northern California. (Sign up now for the drive scheduled for Oct. 10-13 in the old Central Cafe). Barbara coordinates more than 30 retirees who help as greeters and in the canteen. Ron fills in wherever and whenever he is needed.

**Garith** (Mechanical Engineering, 2002) and **Amy Helm** (Laboratory Services, 2002) spent 10 days in France with Amy's dad, Frenchie Allec (Procurement, 1990) and

her stepmom, Marie. It was the first time Frenchie had been to the country of his parents' birth. They took a river cruise along the Rhone, through Provence for eight days, touring sights where van Gogh painted, quaint villages and gothic cathedrals along the river, learning the history of the region and doing some winetasting in Burgundy. Frenchie met several people who were familiar with the town his parents were from and was able to converse in French with them. They went through 15 locks on the river between Arles and Lyon, which also made the cruise very interesting. After the river cruise, they spent three days in Paris, attended mass at Notre Dame Cathedral and saw the major sights of the city. One evening, Garith and Amy came across a carnival near the Louvre. They rode the Ferris wheel and were able to see the Eiffel Tower all lit up when they stopped at the top — quite spectacular. Everywhere they went the French people were warm and welcoming.

**Margie O'Dell** will be setting up the schedule for next year's (January through June) retirees travel group. She would like retirees to volunteer to present a program or to suggest someone. They may call her at (925) 449-7262 or e-mail her at [mardon4308@comcast.net](mailto:mardon4308@comcast.net).

There will be no retiree luncheon in October because of the dinner/dance being held at the new Livermore Community Center on Saturday, Oct. 15 (happy hour 6 p.m., dinner 7 p.m.). Retiree association members should have received a letter announcing the dinner/dance.

Please send any input to Jane or Gus Olson. E-Mail: [AugustO@aol.com](mailto:AugustO@aol.com) or [JaneRubert@aol.com](mailto:JaneRubert@aol.com). Phone: (925) 443-4349, snail mail address: 493 Joyce St., Livermore, 94550

### IN MEMORIAM

#### Jon B. Bryan

Jon B. Bryan, a 37-year resident of Livermore, died Sept. 27, after a battle with cancer. He was 64.

Bryan was born Nov. 9, 1940, in Scott City, Kan. He graduated from Kansas State University in 1968 with a doctorate in physics. He worked at the Laboratory and retired in 1993, after 30 years of service.

He is survived by his wife of 31 years, Gail (Voelker) Bryan; his brothers, Joel Bryan of Scott City,

Kan., and Tom Bryan of Ireland; his father, J. Arthur Bryan of Scott City, Kan., and numerous nieces, nephews and cousins.

Burial will be at Scott City Cemetery in Kansas at a later date. Donations may be made to the Livermore Amador Genealogical Society, P.O. Box 901, Livermore, 94551, or to Kaiser Hospice, 200 Muir Road, Martinez, 94553.

#### Gloria Jean Glasscox

Retired Laboratory employee Gloria Jean Glasscox died Sept. 12. She was 63.

Glasscox was born in Dayton, Ohio, on March 21, 1942. After graduating from high school, she moved to the Bay Area. She was active in the community and established Clorox's Youth Center and numerous theatrical and dance groups throughout the East Bay.

In 1983, she moved to Pleasanton. She received her bachelor's degree from the University of San

Francisco and was employed by the Lab as a quality assurance engineer until she retired. Later she pursued a career as a realtor.

She is survived by her daughter, Pamela Rene Hall; son-in-law David Hall; three grandchildren, Michele Beacham, Timothy Ross Jr. and Anna Marie Bell; and six nieces and nephews. She was preceded in death by her husband Benjamin Glasscox, mother and father Tomansina and Arthur Lumpkin; and sister Betty Charles. Services were held in Oakland.

UTel

**LLTN**  
Lawrence Livermore Television Network

LAB TV broadcasts

For information about Lab TV broadcasting and video production, contact LLTN, 3-3846.



MONDAY– FRIDAY, OCT. 10-14

To help kick off the Laboratory's annual charity drive, the HOME Campaign will broadcast programs from local United Way organizations; the Tri-Valley Community Fund; and the Habitat for Humanity, featuring Lab participants.

"Celebrate Living," United Way of Stanislaus County.

"Habitat for Humanity," news coverage of Lab participants.

"The Big Picture," "Think Again," "Discovery" and "Show and Tell," United Way of America.

"Tri-Valley Community Fund."

For more information on the HOME Campaign, see: <http://home.llnl.gov/index.html>

These programs will appear on Lab TV Channel 2, 4 and 7 at 10 a.m., noon, 2, 4 and 8 p.m. and 4 a.m.

### Newsline

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## DDLS looks to the dark side of the universe

Physicist J. Anthony “Tony” Tyson will deliver a Director’s Distinguished Lecturer Series presentation entitled “Petabytes From the Sky: The Puzzle of Dark Energy” at 3:30 p.m. Tuesday, Oct. 11 in the Bldg. 123 auditorium.

Tyson, a distinguished professor of physics at the University of California, Davis, is an experimentalist interested in gravitational physics. His current research is in cosmology: dark matter distribution, gravitational lens effects, cosmic shear and the nature of dark energy. These investigations use software for pattern recognition, detection of transients in images, large database handling and processing, and new instrumentation for optical astronomy.

Tyson directs the national effort to build a new facility — the Large Synoptic Survey Telescope



J. Anthony “Tony” Tyson

(LSST) — a new kind of telescope-camera. The LSST will sharply probe the physics of dark energy and will create hundreds of petabytes of data. The required automated image analysis of this large database presents exciting technical challenges. With its large aperture and wide field of view, LSST promises to shed light on mysterious dark energy, considered to be the most urgent issue in the physics of our universe.

Tyson will discuss recent images of dark matter and the excitement about his group’s exploration of the Universe’s dark side.

The presentation will be rebroadcast on Lab TV Channel 2 Thursday, Oct. 20, 10 a.m., noon, 2, 4, and 8 p.m. and Friday, Oct. 21, 4 a.m.

For further information [http://www.physics.ucdavis.edu/Cosmology/Cosmology\\_Group.html](http://www.physics.ucdavis.edu/Cosmology/Cosmology_Group.html)

## Complex-wide facilities meeting

Bruce Scott, associate administrator of the National Nuclear Security Administration’s Infrastructure and Environment program, visited the Lab this week as a sponsor of the first annual Energy Facility Contractors Group (EFCOG)/ Infrastructure Management Working Group (IMWOG) meeting.

About 100 facilities management representatives from across the Department of Energy complex gathered in the Bldg. 123 auditorium to hear panel discussions on such topics as performance measures, innovations in alternate financing, improving work management and optimizing safety integration, and strategic initiatives in real property management.

Denise Robinson, the Lab’s institutional facilities manager, hosted the meeting, stating that LLNL was proud to



National Nuclear Security Administration’s Bruce Scott sponsored and attended the first annual EFCOG/ IMWOG meeting at the Lab this week. Denise Robinson, the Lab’s institutional facilities manager, hosted the DOE-wide information exchange for some 100 participants.

organize the first event bringing together facilities managers to share best practices and exchange information.

## New resource on Web for learning about ISMS

A new Environmental Management System (EMS) Website (<http://www.epd.llnl.gov/ems/index.htm>) is now available. The site is a resource for employees to learn about the integration of the Laboratory’s Integrated Safety Management System (ISMS) with ISO 14001, an international environmental management standard, and their own roles and responsibilities under the integrated EMS.

Bill Bookless, associate director for the Safety and Environmental Protection Directorate, recently discussed the EMS and ISO 14001 in a *Newline* column “Adopting this standard is an important step for the Laboratory to maintain an environmental management program consistent with DOE-approved parameters, which is necessary under the UC-DOE contract,” Bookless said. “Laboratory employees should be aware of how the EMS will help us enhance our role as good stewards of the environment while supporting our work activities.”

Bookless and Ellen Raber, head of the Environmental Protection Department, encourage all employees to visit the Website, which presents a variety of EMS-related information, including the LLNL Environmental Policy, information on roles and responsibilities, a glossary of EMS terms, links to ES&H and pollution prevention resources and an EMS “helpline.”

The site will receive frequent updates over the next several months as information and tools supporting the EMS are compiled.

## SANTER

Continued from page 1

years, which, in his words, has given him “the opportunity to work together with world-class scientists at a world-class research institution.

“Any success I’ve had over the years is largely due to the success of PCMDI as a whole,” Santer said. “I would hope that this award could be used to enhance our group’s capabilities.”

Santer will receive \$1.25 million over five years contingent on his continued employment at Lawrence Livermore. Santer was selected following external peer review of applications based on: evidence of sustained scientific excellence; significant scientific achievements; number of publications; research relevance to programmatic goals in BER; and recommendations from individuals at non-affiliated institutions.

This is the first year that the Department of Energy’s BER program is handing out fellowships. The fellowships are given out in four divisions: climate

change research, environmental remediation sciences, life sciences and medical sciences. One scientist from each division is honored this year.

“Human-induced climate change will be one of the major problems confronting our nation — and the nations of the world — in the 21st century,” Santer said. “Ideally, governments will use the best-available scientific information to make rational decisions on appropriate policy responses to the climate change problem. The fellowship represents a tremendous opportunity to advance climate change research at the Laboratory.”

Santer received the award in the climate change research category. He is one of the world’s leading scientists in the identification of human caused climate change in both observations and climate model simulations. “His work is marked by its depth and insight, and he is known for thoroughly exhausting all avenues in his pursuit of a solid answer or conclusion,” the citation reads.

His achievements include:

- Pioneering use of novel pattern-based statistical techniques, called “fingerprint” methods, to identify

human-caused changes in greenhouse gases and sulfate aerosol particles in observational surface temperature records.

- Analysis of tropospheric temperatures and the height of the stratosphere-troposphere boundary, showing that accurate model simulations of climate change require inclusion of radiative forcing from human activities.

- Contributions to the periodic Scientific Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC).

“I believe that climate change will be a significant problem for our country,” Santer said. “The national labs are the right place to do integrated science research. I’m really honored that DOE considers me worthy of this award. I consider it an award not only for myself, but for my colleagues at PCMDI and at research institutions around the world.”

In his career, Santer has received several honors, awards and fellowships, including the “Genius Award” by the MacArthur Foundation and the E.O. Lawrence Award.



## NEWS YOU CAN USE

## Hula-la



Hula teacher Teresa Kamakea attempts to prove that nearly anyone can master this Polynesian dance form, using a cross section of DNT employees during the directorate's annual picnic and awards ceremony on Wednesday at May Nissen Park in Livermore.

## Technical Meeting Calendar

Friday  
**7**

### INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS

"Halo Substructures," by Christopher Kochanek, Ohio State University. Noon, Bldg. 219, room 163. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Wil vanBreugel, 2-7195, or Lisa Lopez, 3-0250.

### LIVERMORE PROJECTS COMMITTEE

"Uranium Processing Facility Project at the Y-12 Plant," by Daryl L. Boyer, LLNL. "Neutron Generator Output Measurement Issues," by David Walsh, SNL/NM. 8:45 a.m., Bldg. 132 auditorium. All attendees must have a SP access card or obtain special approval to attend this meeting. For LLNL, contact Barbara Sherohman, 3-6379, with any SP access questions. For SNL, contact Ann Stayton, 294-2582, with any SP access questions. Property protection area. No temporary building access for foreign nationals. Contact: Scott Couture, 3-4100, or Frances Mendieta, 3-7825.

### CHEMISTRY AND MATERIALS SCIENCE

"Structural Studies of Bacterial Transcriptional Regulators: Protein Mechanics of Sigma54 Activators," by David Wemmer, Department of Chemistry, UC Berkeley. 2 p.m., Bldg. 151, room 1209. Property protection area. Foreign national temporary escorted building access procedures apply.

Contact: Julio Camarero, 2-6807, or Kathy Ricard, 3-8024.

Monday  
**10**

### INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)

"ForNet: A Distributed Network Forensics System," by Nasir Memon, Polytechnic University, Brooklyn. 10 a.m., Bldg. 451, room 1025, White Room. For more information, go to <http://www.llnl.gov/casc/calendar.shtml>. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Rao Vemuri (ISCR), 2-9167, or Erica Dannenberg, 3-2167.

### INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)

"Stable MHD Discretizations," by Timothy Barth, NASA Ames Research Center. 2:30pm, Bldg. 451, room 1025. For more information, go to <http://www.llnl.gov/casc/calendar.shtml>. Property protection area. Foreign national temporary building access procedures apply. Contact: David Keyes, 2-1325, or Erica Dannenberg, 3-216.

Tuesday  
**11**

### LIVERMORE COMPUTING/ DEVELOPMENT ENVIRONMENT GROUP

"TotalView 7 and 7.1 Presentation and Q&A Session," by John V. DelSignore, Etnus, LLC. 9:30-11:30 a.m., Bldg. 453, room 1001. Refreshments available at 9 a.m. Common use facility. Foreign nationals may attend. Contact: Matt Wolfe, 4-6674.

Wednesday  
**12**

### PHYSICS AND ADVANCED TECHNOLOGIES/ N DIVISION

"Europium Neutron-Capture Cross Section and Statistical Properties of Gamma-Ray Cascade," by Undraa Agvaanluvsan. 1:30 pm, Bldg. 211, room 227. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Undraa Agvaanluvsan, 3-1356, or Pat Smith, 2-8210.

Friday  
**14**

### INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS

"The Smallest Massive Black Holes," by Aaron Barth, UC, Irvine. Noon, Bldg. 219, room 163. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Bob Becker, 3-0664, or Lisa Lopez, 3-0250.

**The deadline for the next Technical Meeting Calendar is noon Wednesday.**

Please submit your meetings through the Technical Meeting Calendar form on the Web, located at <http://www.llnl.gov/tmc/index.html>

For information on electronic mail or the newsgroup [llnl.meeting](mailto:llnl.meeting), contact the registrar at [registrar@llnl.gov](mailto:registrar@llnl.gov).



**Top 10 reasons why YOU should attend the Run for HOME**

1. Do not arouse the wrath of the great and powerful Oz.
2. Don't get stuck in Kansas; go to the HOME run.
3. The HOME run is a place where there isn't any trouble. It's not a place you can get to by a boat or a train. It's far, far away, behind the moon, beyond the rain, over in the Z-1 parking lot.
4. It takes the courage of a lion to wear a costume in front of your co-workers.
5. Don't waste away the hours, conferring with the flowers, consulting with the rain.
6. Use your brain; go to the HOME run.
7. It takes a heart to help others.
8. The lions and tigers and bears will get you. Oh my!
9. You don't want to be turned into a flying monkey, do you?
10. Pay no attention to that man behind the curtain; go to the HOME run.

## Run for HOME — times to remember

11:30 a.m.	Race participants gather
Noon	Race begins
11:30 a.m.-1:30 p.m.	HOME Fair open
12:25 p.m.	Race awards given

Wednesday, Oct. 12



## Campaign looks to HOME run

Each year, the Laboratory's HOME (Helping Others More Effectively) Campaign starts off with a bang as skaters, runners and walkers take part in a Lab tradition — the "Run for HOME." This year's event on Wednesday, Oct. 12 is co-sponsored by the Administration and Human Resources Directorate (AHRD) and Biosciences Directorate (BIO). Co-chairs are Rita Brown and Sheryl Goodman (AHRD) and Sarah Wenning (BIO).

### The HOME Fair

Defense and Nuclear Technologies (DNT) is sponsoring the 2005 HOME Campaign. The goal this year is to exceed \$1.65 million and boost participation to 50 percent.

All employees are invited to learn more about the many nonprofit agencies represented in this year's HOME Campaign. Visit the tent in parking lot Z-1 where you'll find 136 booths with representatives ready to answer questions and provide information about the agencies and their help to the community. The fair will be open 11:30 a.m. to 1:30 p.m. Parking lots A-1, A-2, Z-1, Z-2, Z-3, Z-4, and Z-7 will be closed from 11 a.m. to 2 p.m.

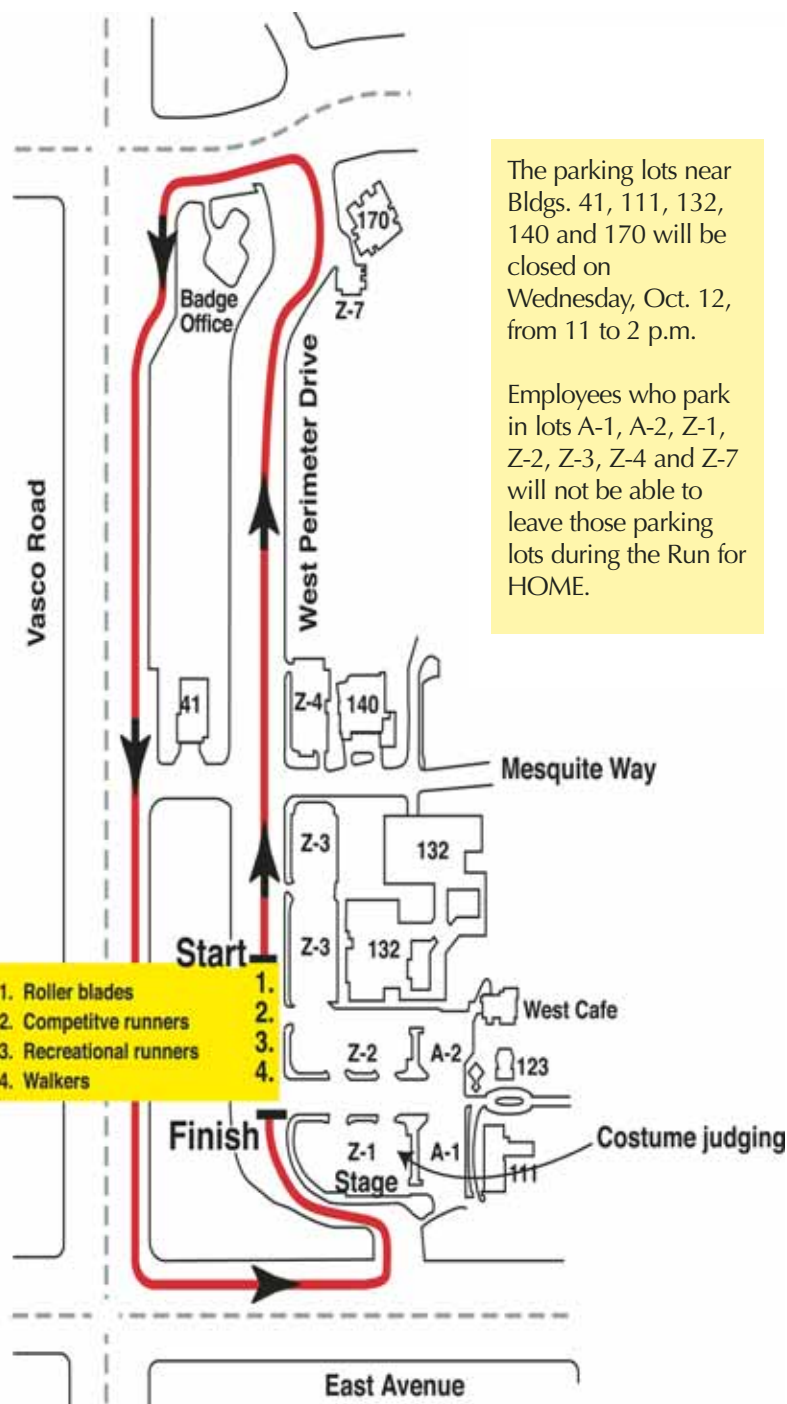
### Fun and entertainment

Everybody attending the Run for HOME will receive vendor-provided samples of Red Bull, Sugar Free Red Bull, Aquafina flavored water, Lipton Green Tea; Dasani flavored water, Coke Zero, Kellogg's NutriGrain Bars, granola bars and Mother's cookies.

Participants are encouraged to dress up in costumes. With "There's no place like HOME" as the theme, there's hope of finding at least one tin man, scarecrow or lion along the course. A costume-judging station will be set up in the Z-1 parking lot. The five costume award categories are: most humorous; most colorful; most creative; best Wizard-of-Oz theme; and best large group.

Participants will be entertained at the start line by the Amador Valley High School marching band. In addition, to put everyone in the mood, Isom Harrison and Sharon Emery of TID will perform "Somewhere Over the Rainbow." Music will be provided by TID's "Free Lunch" band, a classic rock/blues ensemble made up of Technical Information Department employees.

For more information about the 2005 HOME Campaign and the Run for HOME, go the Web at <http://home.llnl.gov/>




**'Toto' to go**

Go to the Central Café or the Web at [http://home.llnl.gov/run/media/pdf/Toto\\_flyers\\_ai.pdf](http://home.llnl.gov/run/media/pdf/Toto_flyers_ai.pdf) for a "Toto" flyer, redeemable for a free snack at the Run for HOME on Wednesday, Oct. 12.

## Instructions for those running in HOME race

The race will start promptly at noon. All participants should gather at 11:30 a.m. in the Z-3 parking area west of Bldg. 132. Prior to the start of the race, all participants should arrange themselves in the following order: skaters (first); competitive runners (second); recreational runners (third) and walkers (last). Race volunteers will be situated in the starting area with signs indicating where race participants should assemble.

There will be separate start times for skaters and runners/walkers. The starting gun for skaters will go off approximately two minutes before the start gun for runners and walkers. As participants come across the finish line, they will need to note the elapsed time on the clock. Since the race clock will begin timing when the runners and walkers' starting gun goes off, skaters will need to add two minutes to their clock times.

Upon crossing the finish line, all racers will be handed finish cards and should continue moving toward the finish card tables. At the tables, they will be given pencils to fill out the cards prior to depositing them into the boxes provided. From the finish card tables, race participants should proceed to the T-shirt table for their free shirt. Then they can continue to the refreshments area, and finally, to the HOME fair tent.

There will be six individual race winner awards: 1st place open male; 1st place open female; 1st place master (over 50) male; 1st place master female; 1st place open male skater; and 1st place open female skater. These individuals will be approached by volunteers and escorted to the award winners' table for recording purposes. (If a participant is in the masters' category and thinks he/she may be a winner, stop by the winners' table to confirm.) After checking in at the finish table, the category winners will be asked to report to the awards stage by 12:25 p.m. Here, they will be awarded a certificate for \$75 which they may donate to the charity of their choice. At Site 300, awards will be given to the 1st place male and female runners only.

All participants who turn in a finish card will receive a certificate of participation.





ANNE M. STARK/NEWSLINE

The NIF Early Light Campaign team received one of the two 2005 Laboratory Science and Technology Awards for the effort that successfully demonstrated the individual beam performance of the NIF laser and its utility to perform experiments.

## S&T AWARDS

*Continued from page 1*

BAMS (Biological Aerosol Mass Spectrometer). An instrument about the size of three podiums, BAMS can analyze individual aerosol particles in real time and at high rates to almost instantly identify the presence and concentration of harmful biological particles in air samples.

Using a laser to peel cells apart and a mass spectrometer to identify the chemicals inside, BAMS can identify airborne pathogens at the single-cell level in about 100 milliseconds. Combining an understanding of laser-particle interactions, the biochemistry of bacteria and mass spectrometry analysis, BAMS is a prototype system that can identify pathogens and differentiate between harmful anthrax spores and benign agents.

BAMS, which also won a 2004 R&D 100 award, is designed for operation in office buildings that could be targets for a terrorist attack, or at ports of entry such as airports or train stations to monitor for potential epidemic diseases. Future biomedical applications could include rapid detection of respiratory diseases such as tuberculosis and SARS.

The Livermore employees who developed BAMS come from several directorates — PAT, CMS, Energy and Environment, Engineering and Nonproliferation, Arms



ANNE M. STARK/NEWSLINE

The BAMS (Biological Aerosol Mass Spectrometer) team is made up of researchers from PAT, CMS, Energy and Environment, Engineering and NAI.

### Control and International Security

“This is a tremendous honor,” Gard said. “I’m proud of the team that developed BAMS. This project was started with LDRD (Laboratory Directed Research and Development). This funding mechanism was the only way I was able to come to the Lab and help develop this technology. It’s been a real honor to take this from basic development out to the field.”

Key participants of the NIF Early Light Campaign team received the award as representatives of the entire team effort, which successfully demonstrated the individual beam performance of the NIF laser and its utility to perform experiments.

Accomplishments of the NIF Early Light Campaign included:

- Demonstration of the assembly, installation, commissioning, and performance of the first four beams of NIF from the master oscillator to targets located at the center of the target chamber.

- Validation of assembly, transportation, installation and commissioning strategies leading to individual beam line performance that could meet or exceed all major NIF requirements in terms of power, energy and pulse length.

- Validation of NIF as a premier facility for performing quantitative experiments in four areas:

- 1) laser-plasma interaction
- 2) hohlraum energetics
- 3) hydrodynamics
- 4) shock physics

Ed Moses, NIF associate director, expressed his appreciation of the hard work by all of the directorates that supported the NIF Early Light Campaign. “Early light is the work of hundreds of people,” he said. “We have to remember all the work that has done before us, and all the work that is going on around us. First light was the proof of principle that NIF can succeed.”



ANNE M. STARK/NEWSLINE

Director Michael Anastasio, right, congratulates Rick Sacks, one of the many members on the NIF Early Light Campaign team.

## NIF Early Light team

Phil Arnold, Jerry Auerbach, Rick Beeler, Brent Blue, Gina Bonanno, Mark Bowers, David Braun, Rob Broderick, Scott Burkhart, Kelly Campbell, John Celeste, Peter Celliers, Gilbert Collins, Gary Deis, Eduard Dewald, Laurent Divol, Sham Dixit, Milo Dorr, Gaylen Erbert, Dustin Froula, Gail Glendinning, Siegfried Glenzer, Gianluca Gregori, Christopher Haynam, Glenn Heestand, Mark Henesian, Mark Hermann, Glenn Hermes, Denise Hinkel, Joe Holder, Mark Jackson, Kenneth Jancaitis, Don Jedlovec, Steve Johnson, Ogden Jones, Dan Kalantar, Jeff Kass, Tom Kohut, Larry Lagin, Otto Landen, Bruce Langdon, Doug Larson, Dean Lee, Brian MacGowan, Andrew Mackinnon, Kenneth Manes, Christopher Marshall, Joseph McDonald, David Munro, Mark Newton, Christoph Niemann, Mike Nostrand, Tom Parham, Dave Peterson, Bob Reed, Valerie Roberts, Harry Robey, Richard Sacks, Jochen Schein, Marilyn Schneider, Michael Shaw, Peter Stry, Laurance Suter, Greg Tietbohl, Paul Vanarsdall, Bruno Van Wonterghem, Russell Wallace, Franz Weber, Paul Weber, Stephen Weber, Paul Wegner, Ronald White, Clifford Widmayer, Edward Williams, Wade Williams, Douglas Woods, Steven Yang, Bruce Young, Rich Zacharia

## BioAerosol Mass Spectrometer (BAMS) team

Henry Benner, Michael Bogan, Keith Coffee, David Fergenson, Matthias Frank, Eric Gard, Norman Madden, Sue Martin, Tom McCarville, Vincent Riot, Paul Steele, Herbert Tobias, Todd Weisgraber, Bruce Woods

## ASTRONOMERS

*Continued from page 1*

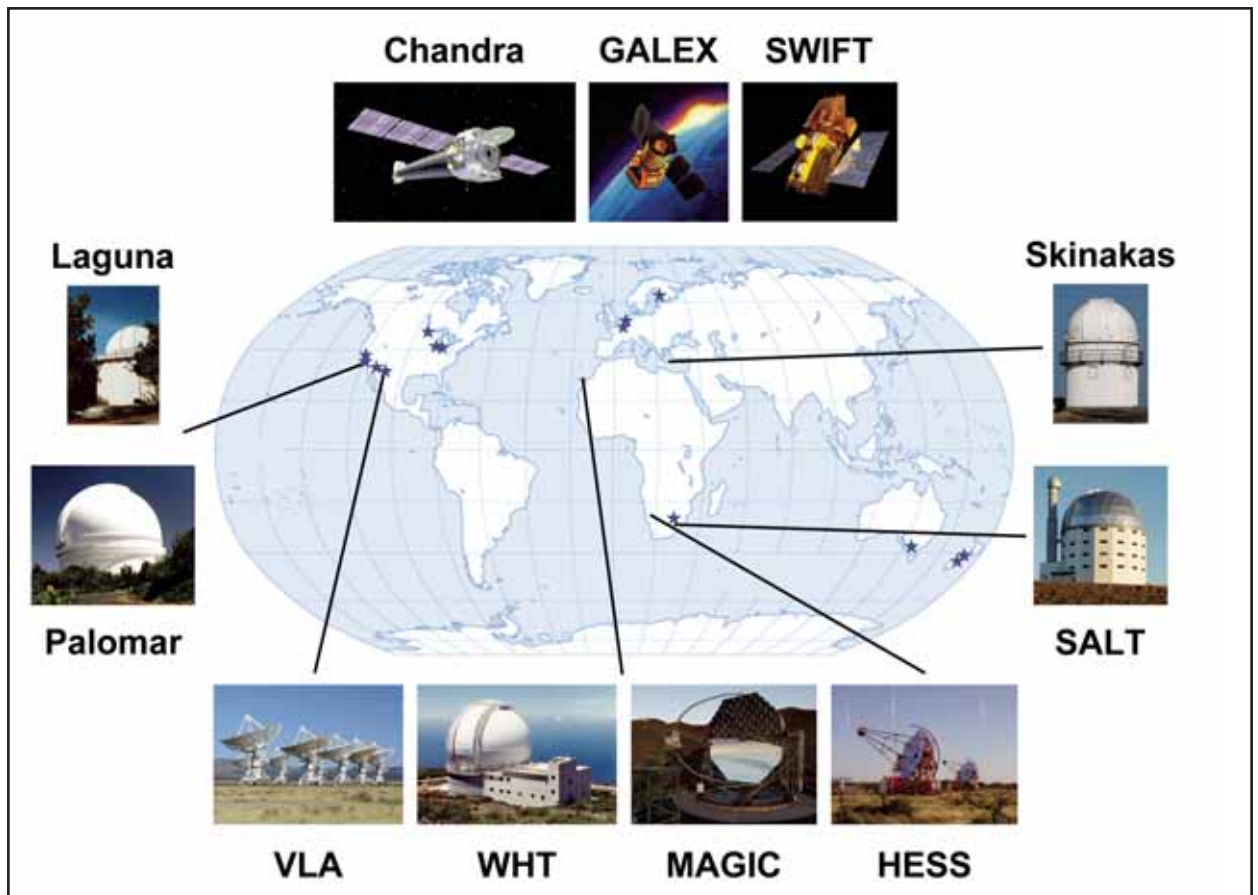
period is 33 seconds and whose magnetic field strength is 1 million Gauss (roughly 2 million times that of Earth). Because of these properties, AE Aquarii is classified as a “magnetic propeller,” with most of the mass lost by the low-mass star being flung out of the binary by the magnetic field of the white dwarf. The spiral flow is much like that of the flow of water from a rotating garden sprinkler. Only a small amount of mass falls onto the white dwarf, which produces what Mauche characterized as “auroras on steroids.”

To gain a better understanding of this complex system, Mauche and his colleagues recently observed AE Aquarii over an interval of five days with telescopes on the ground and in Earth orbit. The ground-based facilities included the Very Large Array, which is sensitive to radio waves; optical telescopes with diameters of roughly 1-10 meters; and the MAGIC and HESS telescopes, which are sensitive to TeV (tera-electron volt) gamma-rays. The space-based facilities were NASA’s Chandra X-ray Observatory, SWIFT, and GALEX, which are sensitive to X-ray and ultraviolet radiation.

Using optical telescopes with diameters of roughly 10-50 centimeters, amateur astronomers affiliated with the American Association of Variable Star Observers (AAVSO) and the Center for Backyard Astrophysics (CBA) provided observations in the gaps the professional coverage.

This coverage by amateur astronomers was critical to the campaign, since no one site on Earth can observe a given star for more than half a day; long observations are hard to secure on large optical telescopes; coordinating observations between different observatories is very difficult; and weather is always a potential problem.

“I have worked with the AAVSO on a number of satellite observations over the past 12 years, and in nearly every case we got good data and did useful science,” Mauche said. “In the present case, we relied on the amateur astronomers to provide optical coverage between our vari-



The photos around the map indicate ground- or space-based telescopes. The stars on the map indicate individual amateur astronomers who contributed during the five-day observation of the binary star system, AE Aquarii.

ous ground- and space-based observations. We were fortunate that AE Aquarii lies on the celestial equator, so astronomers on both hemispheres could observe the source. The star is also bright enough to observe with modest-sized telescopes, and it varies chaotically and pretty much continuously, so it is an interesting source to monitor.”

Responding to an alert by the AAVSO and CBA, amateur astronomers from around the world - including New Zealand, Australia, South Africa, Finland, Belgium,

France and the United States — contributed more than 16,000 optical brightness measurements of AE Aquarii during the five-day interval of Mauche’s multi-wavelength campaign.

In addition, the AAVSO database contains more than 45,000 observations of AE Aquarii dating back to September 1944, providing a rich historical record of the brightness variations of this enigmatic binary star system.

## BUDGET

*Continued from page 1*

be needed due to Hurricanes Katrina and Rita, we also may see some impact on an already

constrained overall federal budget,” Anastasio said.

Since the Lab does not have a final budget, Anastasio has directed the senior management council to proceed “cautiously and deliberately” with workforce planning. In addition, dur-

ing a CR, under federal guidelines, no new project starts are allowed.

“In the next few weeks, we hope to get a clearer budget picture and resolution in conference for our programs. Until then, we must all operate as conservatively as possible.”

## Long way up

A new meteorological tower was erected in the northwest corner of the Lab at the end of September. The 170-foot tower replaces an older 120-foot one and holds more instruments. Servicing instruments will be safer and easier with an electrical lift that replaces the old manual platform lift.

JACQUELINE MCBRIDE/NEWSLINE



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