



Deiter Earns  
Linstead  
page 2



SRNL's  
RadRope™  
page 2



America's Birth  
Certificate  
page 6

T<sup>2</sup> EVENTS

LES 2007

Winter Meeting  
San Francisco, Calif.  
February 21-23, 2006

2007 AUTM Annual Meeting  
San Francisco, Calif.  
March 8-10, 2007

FLC National Meeting  
*Making the Connection*  
Arlington, Texas  
May 15-18, 2007

World's Best  
Technologies Showcase  
Arlington, Texas  
May 15-16, 2007

IBF Venture Capital  
Investing Conference  
San Francisco, Calif.  
June 6-8, 2007

T<sup>2</sup> FACT

In 1880, Alexander Graham Bell invented his Photophone, which transmitted a voice signal on a beam of light. Bell focused sunlight with a mirror and then talked into a mechanism that vibrated the mirror. At the receiving end, a detector picked up the vibrating beam and decoded it back into a voice the same way a phone did with electrical signals. Many things—like cloud cover—could interfere with the Photophone, causing Bell to stop any further research with this invention.

- Mary Bellis, *About.com*

# FLC NEWSLINK

January 2007



## NASA BRIDGES SAFETY GAP

by Nancy Pekar, *NASA Goddard*

A little more than three years ago, the technology transfer office at NASA Goddard Space Flight Center developed an agreement that granted the Federal Highway Administration's Turner-Fairbank Highway Research Center (TFHRC) access to the Hilbert-Huang Transform (HHT) technology and expert advice from the inventor, Norden Huang (retired). Since then, Goddard's technology has played a key role in TFHRC scientists' analyses of traffic flow data, wind and traffic interaction with bridges, and damage detection in pavement and bridges. These analyses, which are performed for the Digital Highway Measurement (DHM) Project, are the first steps in a dramatic shift in the way state departments of transportation will be able to improve the safety and performance of the nation's highway infrastructure.

Dr. Huang began developing HHT in 1995 as part of his oceanography research at Goddard. Unlike precursor technologies, HHT provides an effective method for analyzing nonlinear and nonstationary signals while improving the accuracy of linear- and stationary-signal analysis. Because analytical measurements within many areas of science benefit from a quantitative measurement of nonlinear data, HHT is widely applicable to a broad range of

*See NASA Bridge Tech, page 4*



*A propeller-driven Shadow 200™ unmanned reconnaissance vehicle is launched at a base in Iraq.*

## URGENT CALL RELAUNCHES WOOD PROPELLERS

by George Couch

In mid-July 2006, an anxious phone call to the USDA Forest Service's Forest Products Laboratory (FPL) from a leading manufacturer of airplane propellers rekindled FPL's involvement with wood propellers and research to meet wartime needs of the U.S. military.

Nearly 90 years ago, as World War I dragged on in Europe, FPL, which had

been conducting research related to wood aircraft frames for the U.S. War Department (predecessor of today's Department of Defense), established an experimental propeller laboratory to investigate the problem of warping and twisting caused by atmospheric humidity. Technicians worked around the clock, in three shifts, producing experimental propellers under controlled temperature

and humidity conditions. When the war ended, the military asked FPL to complete the work because of its importance.

The recent phone call, from Sensenich Wood Propellers in Plant City, Fla., echoed that wartime project. Sensenich makes propellers from laminated sugar maple veneer for the Shadow 200™ tactical un-

*See Wood Propellers, page 4*

## DC ON T<sup>2</sup>: TECH TRANSFER AWAITS 110<sup>TH</sup> CONGRESS

by Gary Jones, *FLC Washington, DC Representative*



Greetings from DC. The 109th Congress closed on December 8th (or very early on the 9th to be exact), with a great deal of unfinished business awaiting the 110th Congress when it convenes in January. As the year (and 109th Congress) comes to an end, I thought it might be instructive to highlight/review several outstanding items of interest to the FLC

community—particularly those that the new Congress will (hopefully) take up as they begin work in the new year.

With the close of the fall session, only the Homeland Security and Defense budgets were funded for FY 2007. A continuing resolution is in place to fund all other government activity through February 15 at current 2006 levels. This would leave the next Congress the unenviable task of funding the 2007 budget—which of course began October 1, 2006—at the same time as the rollout of the 2008

budget (February 2007).

However, as reported in *The Washington Post* (December 12, 2006), "the incoming Democratic chairmen of the House and Senate Appropriations Committees announced [on December 11] that they would extend current levels until the 2008 fiscal year begins next October 1." The chairmen also noted that they "would place a moratorium on all earmarks until lobbying changes are enacted." Good or bad (depending on

*See DC on T<sup>2</sup>, page 5*

# FED LABS FLASH | TECHNOLOGY TRANSFER NOTES

## NSWC'S DEITER WINS LINSTADT AWARD

Congratulations to Dr. J. Scott Deiter, Director of Technology Transfer for the Indian Head Division (IHDIV) of the Naval Surface Warfare Center (NSWC), for receiving the 2006 DOD George F. Linsteadt Technology Transfer Achievement Award.



This award recognizes the extraordinary efforts of individuals who facilitate the transfer of technology from the DOD to the private sector.

Cynthia Gonsalves, Acting Director of the Office of Technology Transition and Associate Director of Technology Transfer and Transition, presented Dr. Deiter with the official Deputy Under Secretary of Defense for Advanced Systems and Concepts coin and a certificate of recognition during the DOD Technology Transfer Integrated Process Team (TTIPT) Workshop this past November.

At IHDIV, Dr. Deiter is responsible for all aspects of technology transfer, including CRADAs, partnership intermediary agreements (PIAs), and patent licensing.

After eight years as Regional and Deputy Regional Coordinator of the FLC's Mid-Atlantic Region, Dr. Deiter was elected in May of this year as an at-large member to the Executive Board of the national FLC.

Dr. Deiter was selected to receive the George F. Linsteadt Award by fellow DOD technology transfer peers recognizing his achievements in technology transfer and, in particular, his efforts to license and commercialize a highly durable, cost-effective, and safe container technology called Joint Modular Inter-Modal Container (JMIC).

These containers, which were invented by IHDIV, open easily for inspection and will greatly reduce any negative impact on the environment.

After banging on doors seeking a shipping company ready to recognize the value of the JMIC technology, Dr. De-

iter looked for other avenues for licensing this valuable intellectual property.

Working with Johns Hopkins University, he found a team of highly motivated students who were willing and able to take a risk.

Five upper-level students in the WP Carey Program in Entrepreneurship and Management at Johns Hopkins performed the commercial assessment of the JMIC, developed a business plan, incorporated in May, and licensed the technology from the Navy.

The company's name is Baltimore Shipping Technologies (BST), and the commercial name for the JMIC is now the OmniPak™.

BST received its first commercial sale in June 2006. The DOD will replace 120-plus pallets with the OmniPak™ container technology.

Large royalties from the licensing and commercialization of this technology are expected to return to IHDIV. A new CRADA that Dr. Deiter negotiated with the former students allows them to continue working with the Navy inventor, who is adapting the OmniPak™ for commercial markets based on commercial requirements and customer demands.

The savings in shipping costs to the DOD is expected to exceed many millions of dollars annually.

However, the value of the OmniPak™ container technology to commercial shipping is expected to be in the billions of dollars annually within the next few years.

Under Dr. Deiter's leadership, IHDIV issued 39 patents in FY03, 42 in FY04, and 44 in FY05. The increase is attributed to his training and networking efforts with scientists and engineers. Dr. Deiter is writing in excess of 14 CRADAs annually, generating an income approaching \$3 million a year for IHDIV.

## SRNL, UTEK LICENSE RADROPE™

An agreement for an exclusive commercial license has been reached with UTEK Corporation of Tampa, Fla., and its wholly owned subsidiary, Nuclear



Materials Detection Technologies, Inc. (NMDT), to manufacture and commercialize the RadRope™ Nuclear Materials Detection System. Cargo Connection Logistics Holding, Inc., of Inwood, N.Y., a world trade logistics company, will acquire NMDT from UTEK Corporation in a stock transaction.

The RadRope, developed by researchers at Savannah River National Laboratory, is a lightweight portable system for rapidly detecting the presence of nuclear materials in sealed containers without the

use of harmful x-rays. Using sensors arrayed linearly and encased in fabric, the RadRope system can be dangled in the 2- to 4-inch gap between stacked shipping containers on a cargo

ship by a customs inspector. As the inspector walks along the top containers, a hand-held PDA shows an alarm when any sensor in the array detects radiation levels above background radiation.

The RadRope system can be used in a straight line, a curved line or at an angle, and the length of the system can be easily customized for a variety of different uses. NMDT anticipates use of the technology in a variety of configurations for both seagoing cargo containers and air freight.

## EDWARDS WINS ATCA

An FAA scientist has been named the Air Traffic Control Association (ATCA) Airway Transportation Systems Specialist of the Year. Steven Edwards was honored for his innovative work to enhance the safety and efficiency of airport instrument landing systems.

Edwards, a member of the FAA's Navigational Aids unit at Dallas/Fort Worth International Airport, was cited by ATCA for creating the localizer cable fault analyzer, a unique electronic device that can quickly troubleshoot problems in an instrument landing system's (ILS) antenna array.

The ILS provides precise course and height guidance to an aircraft approaching a runway. The system is made up of a localizer antenna array, with several pairs of directional antennas beyond the end of the runway. All antennas must be functioning properly for the transmitted signal to be correct in the aircraft and for the system to work properly. Any antenna problem can result in an unsafe condition during the final approach.

## FLC NewsLINK

*FLC NewsLink* is published 11 times a year by the Federal Laboratory Consortium for Technology Transfer and the FLC Communications Committee.

FLC Communications Chair: Al Jordan  
Layout & Design: Tom Grayson  
Copy Editor: Denise Bickmore

Subscriptions: tgrayson@utrs.com  
Article submissions: tgrayson@utrs.com

*Opinions or views expressed in FLC NewsLink are those of the contributors and do not necessarily reflect those of the FLC, its officers, or its representatives.*

FLC Management Support Office  
950 North Kings Highway, Suite 208  
Cherry Hill, NJ 08034  
856-667-7727  
856-667-8009 fax  
www.federallabs.org



# TECH WATCH | LABORATORY TECHS READY FOR TRANSFER

## CRUSH AND SPRAY FOR 15% MORE WEED CONTROL

Adam Wiese and co-workers from the U.S. Forest Service's Northern Research Station in Rhinelander, Wisc., and have created a simple device that first crushes weeds to the ground and then sprays them with herbicide through high-pressure nozzles.

This machine increases weed control by 15% compared to traditional weed control methods, even in overgrown fields.

The U.S. Patent and Trademark Office issued a patent for "Combination Foliage Compaction and Treatment Method and Apparatus" by Wiese, Dan Netzer, and Don Riemenschneider on October 17, 2006.

The "crush and spray" device promises to increase the efficiency of field preparation for controlling weeds when tree and shrub seedlings are planted. By crushing weeds with an adjustable, heavy roller and placing the spray nozzle close to the ground, the new applicator achieves precise weed control, thus improving growth.

The "crush and spray" machine can also be used for weed control in powerline rights-of-way, wildlife food plots, vineyards, crop rows, tree farms, seed orchards, and invasive plant removal projects.

Use of this invention provides both economic and environmental benefits, with major applications in large-scale fiber and bioenergy plantations. The Forest Service is actively looking for licensees for this patent.

*More info:* Janet Stockhausen, 608-231-9502, or Deb Dietzman, 651-649-5031

## CLINICAL MANUFACTURING

Available for licensing from the National Institutes of Health is a method for large-scale production, recovery, and purification for plasmid DNA manufacturing meeting human clinical trial requirements. DNA plasmid recovery and purification methods can separate plasmid from contamination from a variety of sources, including cellular debris and proteins as well as genomic DNA and RNA.

The overall recovery of this process is greater than 400 mg of formulated final product per kilogram (wet weight) of E. coli cell paste.

This technology has potential uses in drug manufacturing and clinical studies. In the United States alone, more than 40,000 clinical trials were conducted. The potential market is worth several billion dollars.

*More info:* Dr. John Hewes, 301-496-0477

## TIGER TO IDENTIFY VIRUSES, LIFE FORMS

NASA Goddard Space Flight Center (GSFC) invites companies to license new technologies that can improve the quality and reliability of fiber-optic assemblies. These technologies cover three areas:

- Chemical stripping of optical fibers: The stripping fixture holds a cable end for immersion in a chemical bath, allowing a precise length of fiber to be stripped, preparing it for assembly.

- Reduced bubbles in adhesives: The bubble remover holds and seals a liquid-adhesive-filled connector for use in a centrifuge. Spinning forces drive out problem-causing bubbles.

- Optical fiber connector polishing: This device controls connector polish geometry to promote consistent mechanical interfaces, performance and reliability.

Long-term fiber-optic performance is an important issue in aerospace, military, telecommunications, and cable television applications where downtime must be minimized or eliminated or where the repair of failed parts is not practical or financially feasible.

GSFC's manufacturing devices for fiber-optic assemblies are ideal for an application requiring very high reliability and long life. Industry areas include:


- \* Aerospace
- \* Commercial aircraft
- \* Commercial satellites
- \* Military
- \* Telecommunications
- \* Cable television

\* Medical

\* Optics/photonics.

NASA invites companies to consider licensing these manufacturing device technologies for fiber-optic assemblies.

If you are interested in more information or want to pursue transfer of this technology, please contact the NASA Goddard Office of Technology Transfer at [fiber-optic-assemblies@gsc.nasa.gov](mailto:fiber-optic-assemblies@gsc.nasa.gov).



The FLC  
Green  
Book

Federal Technology Transfer  
Legislation and Policy

Order your copy!  
856-667-7727



## FLC Technology Locator

*Personalized 1:1 Assistance!*

*Need assistance locating information on federal technologies, federal laboratory expertise, or collaboration possibilities?*

Contact the FLC Technology Locator,  
Frank Koos, at 856-667-7727

*Wood Propellers, from page 1*

manned aerial vehicles (TUAV), which are used for reconnaissance and surveillance by American soldiers in Iraq. The harsh operating conditions in Iraq necessitate frequent prop replacement.

Sensenich has been making wooden propellers since 1932 and propellers for military UAVs for more than 40 years. But making propellers that would be subjected to the conditions experienced in Iraq was new.

Steve Boser, vice president for engineering at Sensenich, wanted to know more about the potential effect on the propellers of their transition from humid Florida to arid Iraq, where they might be stored for up to several months.

Boser wanted to find out just how much the predrilled mounting holes would move or shrink as the seasoned wood endured the extreme conditions of Iraq. So he called on one place he had often called before when technical questions arose about the performance and engineering qualities of wood: FPL, the nation's leading research facility focusing on wood utilization and preservation. Researchers there have accumulated masses of data about the behavior of wood under a variety of conditions.

Describing the problem to FPL's Rick Bergman and Robert Ross, Boser asked if FPL could provide precise data on the shrinkage of the propellers as they dried. Given the urgent nature of the project, the FPL researchers agreed to tackle the problem immediately and process the paperwork later.

On July 20, a package of seven propellers, two of them sealed in plastic bags, arrived at FPL. After some initial mea-

surements were made, they were placed in a controlled-environment room to stabilize at a uniform "normal" 11 percent moisture content. A few days later, the five unsealed blades underwent a series of measurements . . . 66 measurements per propeller. On Friday, July 28, the propellers went into a laboratory oven at 150° F to dry to 3 percent moisture content, similar to the condition expected following a few months' storage in Iraq. That weekend, FPL electronics technician Marc Joyal repeated the measuring process seven more times at six-hour intervals as the wood dried.

The resulting data were used to produce engineering drawings depicting the shrinkage and resulting movement of the mounting holes. Digital imaging verified the physical measurements obtained with calipers.

FPL reported back to Boser that analysis of the measurement data revealed shrinkage and movement of the predrilled holes consistent with earlier research findings about wood shrinkage. In his formal report to Boser, FPL's Bergman suggested a few approaches to avoiding problems, such as making the laminated blanks and shaping them into propellers under controlled-humidity conditions more similar to conditions in Iraq, or sealing them in airtight packaging to prevent further drying.

For FPL's Joyal, who spent the weekend measuring and remeasuring the propellers, the importance of what he was doing—and doing quickly—was clear. Joyal had served several months in Iraq in 2003 as a First Sergeant in an Army National Guard unit from Wisconsin.

*NASA Bridge Tech, from page 1*

fields, including medicine, electronics, the environment, and business. HHT was ideal for structural engineering analyses at TFHRC.

TFHRC conducts technology R&D to provide solutions to complex technical problems, thereby enhancing the safety and reliability of the U.S. highway transportation system. Dr. Huang met officials from TFHRC at a seminar, and discussions ensued on the potential use of HHT in highway research.

These discussions eventually led to the 2003 agreement developed, negotiated, and administered by Goddard's Innovative Partnerships Program office.


Under the agreement, TFHRC scientists collaborated directly with Dr. Huang to build an operational model of HHT for their own analyses and to build a knowledge base for using the HHT algorithms for the DHM project. This project uses a van driving at highway speeds to collect and analyze critical highway safety data, which can lead to better bridge and highway safety, design, and construction.



*A three-year agreement with TFHRC has enabled scientists to learn how to apply NASA Goddard Space Flight Center's HHT technology to analyses of traffic flow, wind and traffic interaction with bridges, and damage detection in pavement and bridges.*

"The HHT has been a critical element for accurate analysis of data from some of the sensors on board the DHM van," explained TFHRC's Morton Oskard. "The capability being created in the van

*See NASA Bridge Tech, page 8*



## FLC T<sup>2</sup> Desk Reference

*The Desktop Essential for Laboratory Representatives, Office of Research & Technology Applications Personnel, Business Development Managers, Any and All T<sup>2</sup> Pros!*

**Order your copy (\$5) Call the FLC at 856-667-7727**




- Locate Technologies
- Enhance Your T<sup>2</sup> Knowledge
- Find a Laboratory
- Review Upcoming T<sup>2</sup> Events
- Order Publications

**VISIT [WWW.FEDERALLABS.ORG](http://WWW.FEDERALLABS.ORG)**



# Making the Connection

Dallas Fort Worth Metroplex May 15-18, 2007

The Technology Transfer Event of the Year:

FLC Awards

Training

Successful Scientists

Patents

Licensing

Technology Transfer Tools

CRADAs

Expert Panelists

Co-located with: **WBTshowcase**

More info: Rachel Berkowitz, 856-667-7727, rberkowitz@utrs.com  
www.federallabs.org/meeting

## DC on T<sup>2</sup>, from page 1

how these decisions affect you), this is designed to allow those working under government funding to have a better picture how to plan for the coming year.

The impact on our community is mixed—those programs slotted for increased funding (e.g., the American Competitiveness Initiative agencies: NIST, NSF and DOE/Science) will most likely not receive the increases they were expecting, while those targeted for funding decreases (e.g., Commerce's Advanced Technology Program, and others) should have a reprieve.

Also, numerous authorizing legislative proposals sponsored over the past year have potential impact on the technology community in general. While I highlighted many of these in July, there have been a few changes (advances?) in several areas, three of which are noted below.

First, regarding what has been commonly referred to as competitiveness legislation, the multiple bills submitted over the past year have really coalesced around three primary bills: one in the Senate and two in the House. On the Senate side, the National Competitiveness Investment Act (NCIA) (S.3936) contains input from the three Senate committees having a significant role to play in S&T policy and responsible for much of the recent competitiveness legislation (Energy and Natural Resources; Commerce, Science and Transportation; and Health, Education, Labor and Pensions). This bill addresses most of the recommendations of the National



Academies' "Gathering Storm" report (see this column in the October 2005 *FLC NewsLink*) as well as responding to proposals made as part of the President's American Competitiveness Initiative. If passed by the Senate, it could go to conference with the two House bills that came out of the House Science Committee this fall: the Research for Competitiveness Act (H.R.5356) and the Science and Mathematics Education and Competitiveness Act (H.R.5358), and possibly others—for a final competitiveness bill incorporating everything from basic research funding to STEM education.

All three bills had fairly strong bipartisan support, particularly on the Senate side—the greater challenge will be to bridge the gap between the more expansive Senate bill and the very narrowly defined House bills. Then, of course, the bills have to be funded.

Second, regarding intellectual property legislation, the most salient bill currently in process is the Patent Reform Act of 2006 (S.3818), introduced in the Senate Judiciary Committee in August. As the press release notes, "[T]he main provisions ... focus on increasing patent quality, increasing international harmonization, and decreasing unwarranted or abusive patent litigation." The bill tries to limit litigation by providing for a more robust post-grant review process and removing several underlying elements of the litigation system, as well as moving the U.S. to a first-to-file from a first-to-invent rule.

This bill is an attempt to jump-start a similar bill/effort

languishing in the House since 2005. Senators Hatch (R-UT) and Leahy (D-VT), then-Chair and ranking member, respectively, of the Judiciary Subcommittee on IP, were co-sponsors. Senator Leahy is set to assume the chairmanship of the Judiciary Committee in January.

Third, regarding small business innovative research legislation, the Small Business Administration is up for reauthorization in 2008, and in fall 2006 both the Senate and House proposed reauthorization legislation. The Senate bill (S.3778), introduced in the Senate Small Business & Entrepreneurship Committee (SB&E), focuses on SBIR/STTR programs specifically, proposing to gradually increase the set-aside for the SBIR program to "no less than 5 %" by 2011 and 0.6 % immediately for the STTR program, effectively doubling the funding for both. There is also language in the bill clarifying the conditions upon which a federal lab can act as subcontractor to an SBIR awardee.

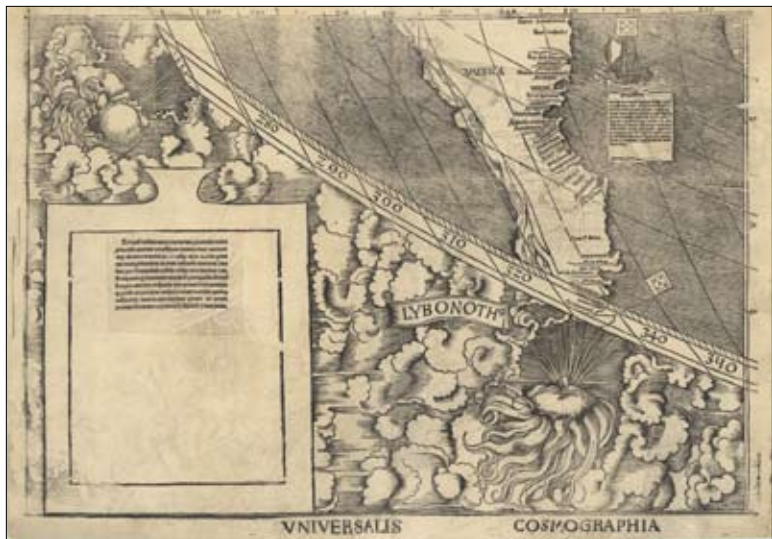
The bill did not move in the fall session, but with Senator Kerry (D-MA) set to take the chairmanship of the SB&E Committee, things could change.

Capitol Hill will be a different place starting in January, regardless of your perspective. The new Congress will have new leadership and a potentially different agenda regarding the many issues of importance to the FLC community. How these legislative proposals will fare in the new Congress is yet to be determined. One year ago, while still the minority party, the Democrats launched their Innovation Agenda (<http://www.democraticleader.house.gov/pdf/HDIA.pdf>). With the Democrats set to take control of both houses of Congress, it may be worth revisiting this document to get an idea of where their focus will be on these issues.

Gary can be reached at [gkjones@fldc.cncost.com](mailto:gkjones@fldc.cncost.com).



# NIST TO PRESERVE AMERICA'S "BIRTH CERTIFICATE"



This sheet (left) from the lower left corner of the 12 that make up the Library of Congress' Waldseemüller map (right) marks the first time the word "America" was used for the newly discovered lands. The full map also shows the outline of North and South America, as well as the Isthmus of Panama, and was the first to depict clearly a separate Western Hemisphere, with the Pacific as a separate ocean. Credit: Library of Congress

by John Blair, NIST

What does the Library of Congress (LOC) do when it wants to preserve a 500-year-old map, the only known copy of the first world map to call America "America?" To preserve the document sometimes called "America's Birth Certificate," the LOC has partnered with the National Institute of Standards and Technology (NIST) to design a hermetically sealed encasement for the 12-sheet 1507 Waldseemüller map.

The encasement is designed to provide optimum accessibility for the public while preserving and securing the document. NIST will supervise construction of the case, which will be turned over to the LOC in 2007. The Library will display the map in the fall of 2007 as part of its "New Visitors' Experience" exhibit.

NIST designed and built the encasements that today house America's Charters of Freedom—the Declaration of Independence, the Constitution, the Bill of Rights and their transmittal letters—for the National Archives in 2003. The Waldseemüller map encasement would be almost six times larger than the largest previous case (for the Bill of Rights).

The planned NIST/LOC design calls for the case to be machined from a solid piece of aluminum and sealed with an

anodized aluminum frame and a sheet of laminated, nonreflective glass. The finished case will measure 116 in. x 73 in. x 4 in. (295 cm x 185 cm x 10 cm).

The hermetically sealed encasement will include valves for flushing out oxygen (which chemically reacts and degrades organic material such as the map's paper and ink) and filling the encasement with inert argon gas.

The encasement also will contain monitoring devices to measure internal environmental conditions.

The design, fabrication and testing of the encasement are largely funded through the Waldseemüller Support Fund, established by Virginia Gray and the Gray family in memory of Martin Gray, with additional support from The Alcoa Foundation for the encasement fabrication and instrumentation, and the Alcoa Company, which will donate the monolithic aluminum blocks from which the various encasement components will be fabricated.

The LOC acquired Waldseemüller's 1507 world map in 2003 from the family of Prince Johannes Waldburg-Wolfegg of Wolfegg, Germany. The map was drawn by cartographer Martin Waldseemüller and others in St. Dié, France, and depicts

European geographic discoveries of the late 15th and early 16th centuries, including those based on data collected by Amerigo Vespucci during his voyages to America. Vespucci's explorations, especially along the east coast of South America, convinced him that Columbus' "Indies" was a new continent.

In his map, Waldseemüller named the newly discovered continent "America" in Vespucci's honor.

Later cartographic efforts by Waldseemüller referred to the Western Hemisphere as "Terra Incognita" or "Terra Nova." Too late—the first name had already caught on.

FLC Midwest Region  
Technology Transfer Training DVD

- Intellectual property
- CRADAs
- Harvesting innovation

Order Your Free Copy Now!  
Contact Ken Wright at 856-667-7727

Federal  
Technology  
Transfer  
2006

Order Your Free Copy Now!  
856-667-7727

# LAB CLASSIFIEDS | AVAILABLE TECHNOLOGIES, FACILITIES, AND PARTNERS

## HOME HEATING

James Lutz of Lawrence Berkeley National Laboratory (LBNL) has invented a gas water heater that is up to 30 percent more efficient than conventional gas water heaters.

The design replaces traditional central tube heating with a side-arm heat exchanger, thereby eliminating standby energy losses that occur when heat is transferred from the hot water to the cooler central dip tube when not actively being heated.

Applications include residential gas water heating.

*More info:* 510-486-6467, TTD@lbl.gov

## LLNL'S IMAGER TECHNOLOGY

Lawrence Livermore National Laboratory (LLNL) is offering a partnership opportunity to further develop and deploy its large area imager (LAI) technology.

This technology addresses applications associated with the Department of Homeland Security (DHS), Department of Defense, and Department of Energy.

One of the major challenges faced by DHS is the remote detection of radioactive materials that could be used in a nuclear or radiological weapon of mass destruction.

LLNL is seeking industrial partners with a demonstrated ability to bring such inventions to the market.

All licensing activities are conducted under policies relating to the strict nondisclosure of company-proprietary information.

*More info:* Catherine Elizondo, 925-422-0801, elizondo1@llnl.gov

## IDENTIFYING VIRUSES, LIFE FORMS

The Naval Health Research Center (NHRC) San Diego is one of the first diagnostic labs to utilize the TIGER (triangulation identification for genetic evaluation of risks) system.

TIGER (recently renamed the T-5000), developed by IBIS Biosciences, is designed as a universal diagnostic device, theoretically capable of identifying all life forms and viruses using DNA/RNA sequence information.

NHRC is using this device to identify pathogenic bacteria and viruses found in throat swab samples from military personnel with symptoms of upper respiratory disease.

NHRC has a collaborative research agreement with IBIS to study the uses of TIGER relevant to avian influenza identification and coronavirus detection, using the TIGER machine currently in service in the NHRC Respiratory Disease Advanced Diagnostics facility.

*More info:* Dr. Van Orden, 619-553-9289

## NCI ISOLATION

Drs. Ira Pastan and Mitchell Ho of the National Cancer Institute have developed a new method of cell surface display of single-chain antibodies for affinity maturation in a mammalian system.

The system is compatible with other mammalian expression systems, and it is a rapid, simple and robust procedure.

Applications include a new method of displaying Fvs on human cells and a new method useful for isolating new high affinity antibodies for cancer, AIDS and other diseases.

*More info:* Betty Tong, Ph.D., 301-496-0477, tongb@mail.nih.gov

## GEOSPATIAL DATA

The ike™ 304, a ruggedized, hand-held device for collecting geospatial data with digital instrumentation, is a product of a CRADA between the Construction Engineering Research Laboratory and Surveylab, Ltd. The product seamlessly integrates and synchronizes a global positioning system (GPS), laser distance meter, digital camera, compass, inclinometer, geographical information system (GIS), and personal digital assistant (PDA) computer. These developments allow users to capture an array of geospatial data, images, and text.

*More info:* John T. Britt, 217-373-7288, john.t.britt@erdc.usace.army.mil

## THWARTING COCCIDIOSIS

Agricultural Research Service (ARS) researchers have developed a method for controlling avian coccidiosis, a major poultry disease caused by several species of the intestinal parasite Eimeria.

ARS's method is a pretreatment regimen that could be administered either orally to poultry or injected into embryonated eggs.

Coccidiosis is a leading disease that costs the poultry industry more than \$3 billion worldwide in total annual economic losses from treatment expenses, bird losses, and low bird weight (critical for marketing broilers). Current disease control strategies include drug-treatment regimens; however, the parasite is developing resistance to these treatments. The industry needs a combination of preventative and control strategies to control poultry coccidiosis.

*More info:* Tara T. Weaver-Missick, 301-504-6965, twm@ars.usda.gov

## INL TORCH

Idaho National Laboratory (INL) has designed a GTAW torch that is solely air-cooled and capable of welding at 300 amps continuous duty.

The torch features a tungsten stick that can be remotely adjusted from the gas cup while maintaining the tip of the tungsten stationary with respect to the torch body. It also is possible to remotely change out the tungsten. The fixed tungsten allows the torch to be operated with a camera system for any remote welding without the requirement of continually changing the view of the cameras, thereby allowing for continuous welding cycles.

*More info:* Ida Shum, 208-526-0744

## TUMOR TREATMENT

To a large extent cancer mortality is due to metastatic disease than a primary tumor. Recent evidence suggests that metastatic disease can be an early event and in majority of patients metastasis starts by the time the disease is diagnosed.

Thus there is a need for methods of characterizing the early metastatic process for better treatment of cancer.

An NIH invention provides methods of characterizing the metastatic capacity of a tumor as well as inhibiting metastasis of a cancer cell.

More specifically, this invention discloses an extracellular matrix (ECM) modifier protein named Anakin, detection of the Anakin protein as a marker for metastatic disease and use of Anakin as potential therapeutic target.

**Market:** 600,000 deaths from cancer related diseases estimated in 2006.

**Status:** The technology is currently in the pre-clinical stage of development and is available for license.

*More info:* Mojdeh Bahar, J.D.; 301/435-2950; baharm@mail.nih.gov



*NASA Bridge Tech, from page 4*

represents the beginning of a paradigm shift in the way states will view and be able to carry out their stewardship of the nation's highway infrastructure."

As a result of working with Goddard's HHT technology, TFHRC gained the ability to measure highway design performance, rate of deterioration, and remaining life, thus improving the performance of future highways and bridges.

TFHRC will be able to use these findings to improve future highway safety and contribute to improved quality of life.

For NASA, the agreement enhanced NASA's strategic technology objectives. As noted by Dr. Huang, "By sharing the HHT technology with TFHRC, NASA will also benefit by using the resulting knowledge to refine and further develop HHT and its use in other areas of research."

For example, stability analyses developed using HHT on vibration measurements at TFHRC are being used to benefit NASA research as well, particularly aero-elastic flight data at NASA Dryden Research Center.

*Order Your Free  
FLC Gear Today!*



Call  
856-667-7727  
or visit [www.federallabs.org](http://www.federallabs.org)



## FLC 2007 Calendar

*Keep your schedule organized while learning about the cutting-edge efforts of the federal laboratory system. Each month highlights a technology or service developed by a federal laboratory that is now enhancing our everyday lives.*



*Order Your Free Copy Now! Call 856-667-7727*

PRRST STD  
U.S. POSTAGE  
PAID  
PERMIT #117  
SOUTHEASTERN PA  
19399

January  
2007

Published by the Federal Laboratory Consortium for Technology Transfer  
The Only Government-wide Forum for Technology Transfer  
FLC NEWSLINK