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T² FACT

Brothers Joseph Michel and Jacques Etienne Montgolfier were inventors of the first hot air balloon. They used the smoke from a fire to blow hot air into a silk bag. The silk bag was attached to a basket. The hot air then rose and allowed the balloon to be lighter than air.

In 1783, the first passengers in the colorful balloon were a sheep, a rooster and a duck. It climbed to a height of about 6,000 feet and traveled more than one mile. The first manned flight was on November 21, 1783; the passengers were Jean-Francois Pilatre de Rozier and Francois Laurent.

- Mary Bellis, About.com



T² EVENTS

ATIA 2006 Conference
Orlando, Fla.
January 18-21, 2006

IFPAC 2006
Arlington, Va.
February 20-23, 2006

2006 AUTM
National Meeting
Orlando, Fla.
March 2-4, 2006

World's Best Technology
Showcase 2006
Arlington, Texas
March 27-29, 2006

NJTC Venture Conference
Somerset, N.J.
March 29, 2006

SAE 2006
Detroit, Mich.
April 3-7, 2006

BIO 2006
Chicago, Ill.
April 9-12, 2006

FLC National Meeting
Minneapolis, Minn.
May 1-4, 2006

NATICK SOLDIER REINVENTS THE CAMP STOVE

by Robert Rosenkrans, U.S. Army

In an age when camp stoves are mature devices based on proven technology, innovation has stalled while manufacturers compete for fastest boil time, a contest which has not led to smaller, more efficient designs.

Meanwhile, the military has adopted JP-8 as its single "battlefield fuel," a kerosene-like turbine fuel that is much more difficult to burn in a camp stove than consumer-friendly performance fuels like white gas or propane.

For the already overburdened warfighter, ease of use is important, and every ounce counts. A personal stove is an essential multipurpose item for heating water and rations, and for personal hygiene—in cold weather, it can be necessary for survival.

Long aware of the need for improved burner technologies, Leigh Knowlton and Don Pickard at the U.S. Army Natick Soldier Center (NSC) have researched several approaches



This prototype CFV stove represents a breakthrough in camp stove technology. Courtesy of Cascade Designs, Inc.

ranging from the mundane (ceramic fiber wicks) to the exotic (electrostatic atomization).

NSC's goal was to identify a promising new technology,

with strong commercial potential, that can shift the paradigm from "who boils the fastest wins" to "who boils

See Camp Stove, page 4

DECADE-LONG TRANSFER FOR NASA SCIENTISTS

by Jeffrey A. Kohler, NASA Kennedy Space Center



Setra's MicroCal™ Low Pressure Calibrator incorporates NASA technology.

smooth to prevent particles from getting lodged. Technicians working in these environments wear specially designed cleanroom "bunny suits" and booties over their street clothes, as well as gloves and face

Scientists at NASA Kennedy Space Center (KSC) work in cleanrooms and laboratories with high degrees of cleanliness provided by the strict control of particles such as dust, lint, or human skin.

They are contaminant-free facilities, where the air is repeatedly filtered and surfaces are smooth to prevent particles from getting lodged. Technicians working in these environments wear specially designed cleanroom "bunny suits" and booties over their street clothes, as well as gloves and face

masks to avoid any contamination that may be imparted from the outside world. Even normal paper is not allowed in cleanrooms—only cleanroom low particulate paper. These are sensitive environments where precision work, like the production of silicon chips or hard disk drives, is performed.

Often in cleanrooms, positive air pressure is used to force particles outside of the isolated area. The air pressure in the KSC cleanrooms is monitored using high-accuracy, low-differential pressure transducers that require periodic calibration.

See NASA KSC, page 2

DC ON T² DOE SEEKS ADVISORS, NNSA ASSESSES LANL SECURITY

by Neil Macdonald
Federal Technology Watch

The Department of Energy (DOE) is seeking candidates to serve on its newly formed Hydrogen Technical and Fuel Cell Advisory Committee (HTAC), established by the 2005 Energy Policy Act (P.L.109-58).

To ensure a wide range of candidates for HTAC membership and a balanced committee, DOE is soliciting nominations by Jan. 23.

Nominations should be sent to htac.nominees@ee.doe.gov.

HTAC, which will provide advice and recommendations to the Energy Secretary on the program authorized by the Spark Matsunaga Hydrogen Act of 2005, supersedes the Hydrogen Technical Advisory Panel established by the Spark Matsunaga

See DC on T², page 5

NIH LOOKS TO BYPASS BYPASS SURGERY

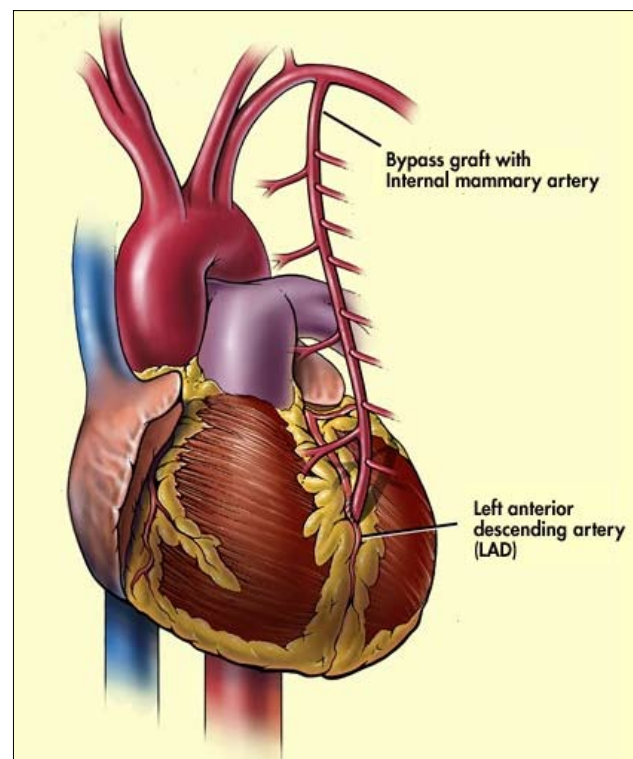
Taxus® Express²™, a revolutionary new product based on a National Institutes of Health (NIH) discovery, has the potential to benefit many victims of cardiovascular disease, which causes 40% of all deaths in the U.S.

After a heart attack, patients often undergo an invasive bypass surgery or a less invasive angioplasty procedure, where a tiny mesh-like device called a stent is inserted into the artery to keep it propped open.

However, in many stent placement cases, the body reacts to this foreign object by forming scar tissue, and the artery narrows again. With Taxus® Express²™, a cancer drug commonly known as Taxol® is imbedded into the interior of the stent within a slow-release polymer so that it is dispensed into the tissue slowly; this in turn prevents restenosis (reblocking) of the artery.

By being the first in the wave of so-called drug-device combination

See NIH Bypasses Bypass, page 4



Taxus® Express™ dramatically reduced restenosis rates in patients treated with stents to just 3-6 percent.

CCAT AWARDS GRANTS TO NEW SECURITY TECHS

by Susan Finch, CCAT

The Center for Commercialization of Advanced Technology (CCAT) in San Diego, Calif., announced today that it has awarded business development grants and business support awards to three companies and one university that have developed technologies for use in military, security and commercial operations.

Dr. William Tong, Distinguished Professor in Chemistry and Biochemistry at San Diego State University, was granted a \$75,000 product development award, a market study, and commercialization planning assistance for his methodology using laser wave mixing as a detector that can identify trace explosives and/or elements in dirty bombs. The technology offers a sensitivity level that has never been available in a portable unit.

A \$75,000 product development grant, a market study, and commercialization planning assistance was also awarded to Daylight Solutions of Poway, Calif. Daylight Solutions is in the process of creating high performance, portable molecular detection and imaging systems used for identification of explosives, harmful gasses and illegal drugs. The system

See CCAT Grants, page 4

FED LABS FLASH | TECHNOLOGY TRANSFER NOTES

SRNL RESEARCHER WINS TECH AWARD

by Joseph Dugan, Savannah River National Laboratory

The Technology Transfer Office of Savannah River National Laboratory (SRNL) nominated Dr. Brian B. Looney to the National Ground Water Association (NGWA) for a 2005 NGWA Award of Excellence in the Technology Award category.

The Technology Award is presented to a person who has made a major contribution to the ground water industry in the development of ideas, tools, and equipment; techniques of well construction; exemplary service to co-workers throughout the industry in sharing these developments; and/or performing service for the protection of ground water resources and the consuming public.

The nomination extols Looney's contributions as the technical lead for the teams that developed PHOSter™, In Situ Microbial Stabilization of Metals Using Phosphate-Amended Bioventing (PrecipiPHOS™), and In Situ Generation of Oxygen-Releasing Metal Peroxides (World's Best Technologies 2004 winner).

The awards will be announced publicly and presented at the NGWA Annual Convention and Exposition in Atlanta, Ga., December 13-16, 2005.

The NGWA is the hallmark organization for the ground water industry and has a membership in excess of 15,000.

The purpose of the organization is to provide guidance to members, government representatives, and the public for sound scientific, economic, and beneficial development, protection, and management of the world's ground water resources.

This is a significant achievement for an SRNL scientist to receive an award from a national organization.

SANDIA/UK TECH TEST

Sandia National Laboratories (SNL), along with partners General Atomics Aeronautical Systems, Inc. and Sierra Monolithics Inc., demonstrated the Athena Radar-Responsive Tag during Exercise "Urgent Quest" in the United Kingdom (Salisbury Plains Training Area) Sept. 19 through Oct. 9, 2005.

Athena was developed with sponsorship from the U.S. Army CERDEC I2WD Division and the U.S. Air Force Air Warfare Battlelab.

Urgent Quest is a Military Utility Assessment, associated with the Coalition Combat Identification (CCID) Advanced Concept Technology Demonstration (ACTD), organized to demonstrate the effectiveness of new technologies in preventing friendly fire, or fratricide.



Athena Radar-Responsive Tag was demonstrated during Exercise Urgent Quest in the United Kingdom.

The device, tracked via aircraft radar, can be used to identify both U.S. and coalition forces during combat to avoid fratricide. During war, fratricide is the act of killing one's own soldiers.

Aircraft on bombing runs used their onboard radar systems to ensure there were no friendly troops in their sights.

If an Athena-tagged vehicle was present, a unique identifier appeared on the pilot's screen alerting him to a friendly force in his target area, thereby avoiding potential friendly fire.

In preparation for Exercise Urgent Quest, the Athena tag has been demonstrated with several U.S. and European aircraft.

SNL project administrator Darick Lewis said the exercises were intended to evaluate the effectiveness of various technologies in preventing friendly fire.

"Ideally, worthy candidate technologies can be transitioned into final development programs and produced for warfighter use," he said. "Athena is effective because it utilizes a fighter aircraft's existing radar for detection. It is simple, rugged, small and inexpensive to integrate."

ARGONNE IMPROVES MAGNETIC POSSIBILITIES

Permanent magnets are important in a broad variety of commercial technologies, from car starters to alternators for wind power generation to computer hard drives.

Researchers at the Department of Energy's Argonne National Laboratory (ANL) have found new clues to making those magnets longer-lasting and more powerful.

Using the Western Hemisphere's most powerful X-rays at the Advanced Photon Source at ANL, the researchers were able to see new details of rare-earth ions, a critical component of permanent magnets.

The examination of the ions, probing their magnetism with unprecedented resolution, revealed that the presence of rare-earth ions in more than one atomic environment reduces the magnetic stability of the best-performing permanent magnets to date.

This knowledge will enable manufacturers to manipulate the rare-earth ion atomic structure for optimization of future magnets.

Rare-earth ions come from metallic elements that share similar chemical properties; they are not especially rare, but they are used sparingly because of the high cost in preparation of the materials.

Rare-earth ions play an important role in determining magnetic stability against demagnetizing fields, and therefore in magnet performance.

"The research found that rare-earth ions in dissimilar crystalline environments compete with one another, and undermine the magnetic performance of the highest performance magnets," said ANL scientist Daniel Haskel, who led the research team. "These findings point to the need for specialized atomic engineering of the material—manipulating the rare-earth local atomic structure to fully utilize the rare-earth contribution in next generations of magnets."

NASA KSC, from page 1

tion. Calibration of the transducers is a tricky business. In previous years, the analysis was performed by sending the transducers to the Kennedy Standards Laboratory, where a very expensive cross-floated, labor-intensive, dead-weight test was conducted.

In the early 1990s, scientists at KSC determined to develop a technique and test equipment to perform qualification testing on new low-differential pressure transducers in an accurate, cost-effective manner onsite, without requiring an environmentally controlled room.

They decided to use the highly accurate, cost-effective Setra Model C264 differential pressure transducer for their testing.

For qualification testing of the Setra, though, a portable, lower cost calibrator was needed that could control the differential pressure to a high degree of resolution and transfer the accuracy of the Standards Laboratory into the qualification testing. The researchers decided that to generate the low differential pressure setpoints needed for qualification testing, very small gas volume changes could be made against the test article, and a corresponding pressure change would be detected by a pressure standard. This allowed the researchers to recreate cleanroom air pressure settings without the use of a cleanroom.

Thus was born the low differential pressure generator. In 1993, a prototype was developed using a pair of PVC tanks, a volume controller, and a 1-pound-per-square-inch pressure standard. By 1995, the prototype was perfected into the unit that is still used today.

Partnership

As with so many NASA-inspired inventions, the scientists were in need of a new piece of equipment, so they built it themselves. Stephen Stout and Richard Deyoe of Kennedy were the two principal researchers on this project and they, with NASA, patented it as the Low Differential Pressure Generator in 1997.

Ironically, in 2002, Setra Systems, Inc., the company whose original Model 264 pressure transducer had been tested, came across the new technology while conducting a search for the same type of equipment that the staff at KSC had wanted. Setra found the low pressure generator described in an article in NASA Technology Briefs. Setra was seeking a pressure generation method that would isolate the differential pressure sensors from environmental noise during the calibration procedure, a problem that was discovered working with pharmaceutical manufacturers attempting to certify critical air handling processes.

Setra, of Boxborough, Massachusetts, then contacted KSC's Technology Transfer Office to obtain rights to the patent, and the NASA office facilitated the paperwork and provided them exclusive rights to the technology.

Product

Setra, known for its simplicity of design, high accuracy, exceptional long-term stability, and competitive pricing, incorporated the NASA technology into its Micro-Cal™ Low Pressure Calibrator, and now offers this

See NASA KSC, page 5



FLC NEWSLINK

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TECH WATCH | LABORATORY TECHS READY FOR TRANSFER

OAK RIDGE SEEKS PARTNER TO LICENSE GROUNDWATER TREATMENT TECHNOLOGY

Oak Ridge National Laboratory (ORNL) has invented a method and a composition of a mixture for degradation and immobilization of contaminants in soil and groundwater.

The oxidative particle mixture and method includes providing a material having a minimal volume of free water, mixing at least one inorganic oxidative chemical in a granular form with a carrier fluid containing a fine grained inorganic hydrophilic compound, and injecting the resulting mixture into the subsurface.

The granular form of the inorganic oxidative chemical dissolves within the injection areas, and the oxidative ions move by diffusion and/or advection, therefore extending the treatment zone over a wider area than the injection area. The organic contaminants in the soil and groundwater

are degraded by the oxidative ions, which form solid byproducts that can sorb significant amounts of inorganic contaminants, metals, and radionuclides for in situ treatment and immobilization of contaminants.

The method and composition of the oxidative particle mixture for long-term treatment and immobilization of contaminants in soil and groundwater reduces the toxicity of contaminants in a subsurface area of contamination without the need for continued injection of treatment material, or for movement of the contaminants, or without the need for continuous pumping of groundwater through the treatment zone, or removal of groundwater from the subsurface area of contamination.

Potential applications include in situ treatment of groundwater.

The primary advantages of the invention are that the mixture will reach in situ strata of contamination without dissolution, will disperse throughout the zone of contaminated soil and groundwater, will continuously react with organic contaminants without producing toxic byproducts in situ, and will bind and immobilize metals and radioactive contaminants in situ to limit the spread of toxic or radioactive contaminants in groundwater.

ORNL seeks a licensing partner to commercialize this technology.

More info: Russ Miller, Commercialization Manager, ORNL Technology Transfer and Economic Development, 865-574-8746

PNNL MAKES SENSE OF IT ALL

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More info: <http://availabletechnologies.pnl.gov>

LBLN DEVELOPS BIOMARKER FOR CANCER RESEARCH AND TISSUE ASSAY

Eukaryotic cells, after proceeding through a finite number of cell divisions, enter a state characterized by irreversible growth arrest and altered function. Researchers believe that entry into this senescent state is a dominant, genetically controlled process that constitutes a tumor suppressive mechanism.

Lawrence Berkeley National Laboratory (LBLN) and New England Medical Center researchers have now developed a convenient, single cell-based technique that readily identifies senescent cells in heterogeneous populations.

This is the first biomarker of cell senescence that does not rely on measurements of DNA synthesis for detection. LBNL's method clearly distinguishes senescent cells from quiescent, terminally differentiated or physiologically compromised cells grown in vitro.

This method also identifies the senescent state in cells of certain tissues grown in vivo, including skin cells.

LBLN's technique will provide a valuable tool to develop rational interventions in the areas of aging and cancer. A convenient kit incorporating LBNL's procedure, useful to medical staff in offices and hospitals, would simply, immediately, and inexpensively aid in the diagnosis and prognosis of a variety of surgical

procedures and pharmaceutical regimens.

Advantages

This method provides a rapid, convenient and inexpensive basis to:

- Screen biological or pharmaceutical compounds that have anti-tumor, anti-aging, or proliferation-modulating properties.
- Identify senescent cells in culture without the use of radioactivity, or costly and time-consuming immunodetection methods.
- Identify senescent cells in situ in tissues or in freshly isolated cells, to distinguish them from quiescent, terminally differentiated, or physiologically compromised cells. This will provide a means to evaluate, in vivo, the physiological, as opposed to chronological, age of the tissue.
- Separate, quantitate, and culture senescent cells from heterogeneous cell populations.
- Rapidly provides information useful for pre- and post-surgical diagnoses and prognoses such as:
 - Degree to which benign or malignant tumors have escaped senescence
 - Regenerative capacity of tissues prior to surgical procedures
 - Extent of proliferative capacity of a tissue

or cell type

Applications of the Technology

- Screen compounds for effects on cell senescence, including high throughput applications
- Pre- and post-surgical tissue assay
- Cancer and aging research.

More info: Technology Transfer Department, 510-486-6467, Fax: 510-486-6457, TTD@lbl.gov



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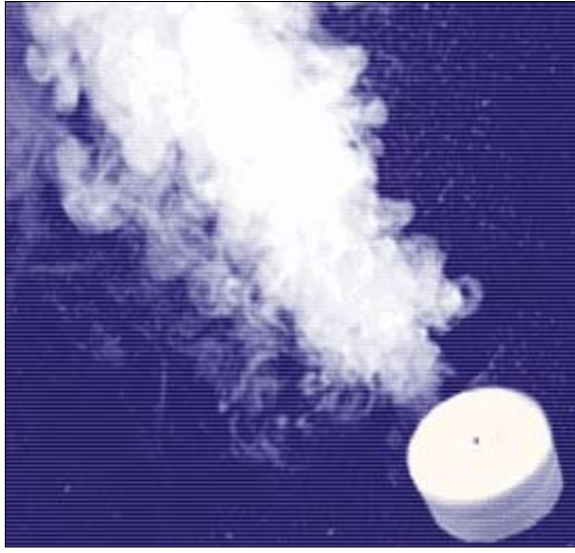
Camp Stove, from page 1

the lightest wins" while improving safety and ease-of-use.

Enter the capillary force vaporizer (CFV) developed by Vapore, Inc., of Alameda, Calif.

Made of layered ceramic and looking somewhat like an antacid tablet, the CFV is a durable solid-state device that generates a jet of vapor from unpressurized liquid fuels. It uses capillary forces to transport liquid, and heat to vaporize it, eliminating the need for mechanical pumping and pressurized fuel tanks. This technology is well-suited for camp stoves, and enables dramatic reductions in size, weight, and complexity over conventional designs.

To reinvent the camp stove using CFV technology, NSC teamed up with Cascade Designs, of Seattle,



The CFV uses heat to make a jet of vaporized fuel.

Wash. Because the military market is relatively small, commercial adoption appears key to making new burner technology affordable. The product of this research is a new stove design that represents breakthroughs in safety (no pressurized

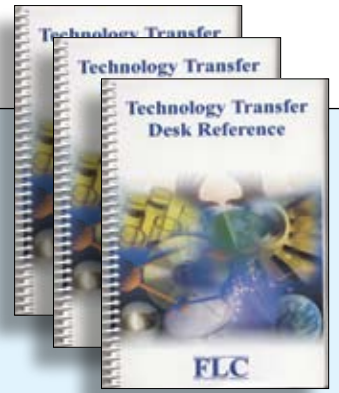
fuel tank) and ease of use (match light with no manual priming). The CFV makes possible long-term, maintenance-free operation with liquid fuels, including JP-8. And despite a heat output much lower than a conventional stove, it can heat water just as fast with half as much fuel when paired with a specially designed high-efficiency mug.

The new stove is about 40% lighter empty, and reduces the weight of fuel to be carried by 50%, qualities the warfighter and the serious outdoor enthusiast alike can appreciate.

NSC believes the technology is coming soon to a sporting goods store near you.

Cascade Designs unveiled a commercial version of the new stove at Outdoor Retailer Summer Market 2004, where it was declared "Star of the Show" by *Outside Magazine*.

The product will be reintroduced in 2006 once economical mass production of the CFV is possible.



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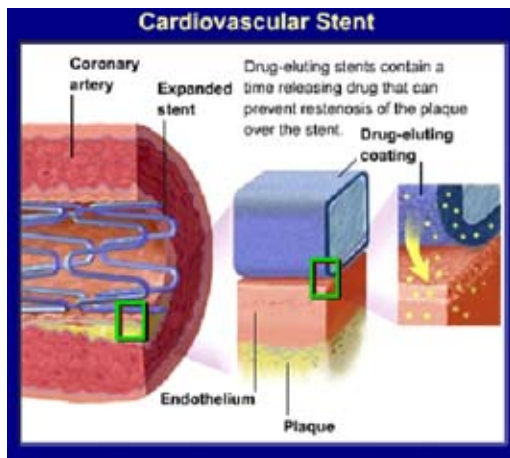
NIH Bypasses Bypass from page 1

products, these stents are stimulating new ways of thinking about treating diseases.

Drs. Steven Sollott and James Kinsella at the National Institute of Aging, NIH, began using such drug-coated stents in animal models.

They discovered that these Taxol-coated stents prevent both thrombosis and abnormal tissue growth, thus completely inhibiting the formation of new arterial blockages. After the original discovery was made in 1993, a license agreement was signed between NIH and Angiotech in 1996. In collaboration with Boston Scientific, Angiotech refined the original prototype, tested the product extensively in humans, and gained FDA approval for commercial sales in 2004.

Since coming to market, this revolutionary drug-device combination has established itself as the preferred



treatment method. It has dramatically reduced restenosis rates in patients treated with stents to just 3 to 6 percent, meaning far fewer return visits to the hospital. In fact, the use of these drug-coated stents is expected to substantially reduce the number of open-heart bypass surgeries, estimated to be over 350,000 annual cases in the U.S.

CCAT Grants, from page 1

utilizes tunable lasers with specialized lenses and can be discretely deployed in a variety of environments, providing early warning to otherwise undetectable threats.

Armadar LLC of Hoboken, N.J., was awarded a \$75,000 product development award for its TW-LODAR technology.

The palm-sized system transmits low power radio-frequency signals for through-the-wall motion detection of humans and other large living organisms concealed by non-metal structures or barriers.

Intended for use in military, police and search-and-rescue operations, the TW-LODAR system emits a silent readout upon detection of movement, including cardiovascular and respiratory functions.

A San Francisco company, Acceleron Technologies LLC, was granted a product development award, a market study, intellectual property protection service, and commercialization planning assistance for its G-Trax™ technology. Acceleron's proprietary G-Trax system utilizes micro electro-mechanical systems (MEMS) to piggyback on a global positioning system (GPS) processor to significantly improve positioning and location tracking accuracy, particularly when the GPS system becomes unavailable.

The G-Trax is small enough to be worn on the shoe of a first respond-

er and can be used for locating and tracking personnel, providing critical information in the event individuals become trapped or are unable to respond.

Funded by the Department of Defense (DOD), the CCAT program identifies, evaluates, funds and fast-tracks the development of technologies for use by the DOD, Department of Homeland Security (DHS), and the private sector.

About CCAT

CCAT is supported by Congress and funded by the DOD as a public-private collaborative partnership between academia, industry, and government. With centers located at California State University, San Bernardino and San Diego State University, the CCAT program provides funding and business development support services to small entrepreneurs, small businesses, and government/university research scientists that have developed technology for use in the DOD and DHS, as well as the commercial marketplace.

Additional program partners include the University of California, San Diego and Lockheed Martin ORINCON Technologies, Inc., with support from the Space and Naval Warfare Systems Center, San Diego.

For more information about CCAT, visit <www.ccatsocal.org>.



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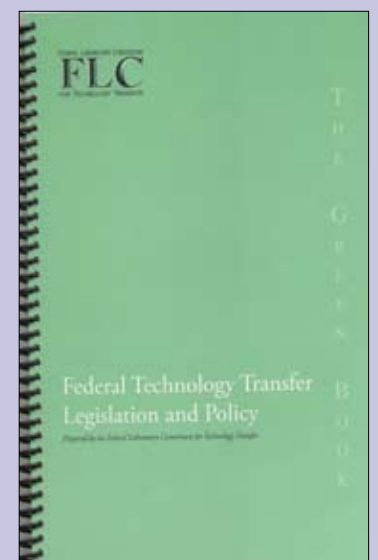


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DEPT. OF DEFENSE CELEBRATES 10TH T² PLANNING MEETING

by Ed Linsenmeyer and Dave Appler

On November 15-17, 2005, Department of Defense (DOD) technology transfer professionals gathered in Santa Fe, N.M., for the tenth anniversary meeting of the Technology Transfer Integrated Planning Team (TTIPT).

In May 1997, Dr. Lance Davis, Director of the DOD Office of Technology Transition, and Cynthia Gonsalves, Program Manager for the DOD Technology Transfer Program, established and kicked off the first meeting of the TTIPT.

The TTIPT provides an opportunity for DOD technology transfer professionals to discuss issues, share expertise, discuss process and policy questions that lead to good solutions, and receive training in areas of particular interest to DOD.

Like other agencies, DOD has its own internal policies, some DOD-unique technology transfer mechanisms, export control concerns, etc., that



Sue Payton, Deputy Undersecretary of Defense for Advanced Systems and Concepts, believes the DOD has taken a strong position that technology transfer is an important part of our investment strategy for defense R&D.

make getting the "DOD family" together for a "roll-up-your-sleeves" working session highly productive.

How does the TTIPT stand after all these years of working together?

"DOD has taken a strong position that technology transfer is an important part of our investment strategy for defense R&D. It provides us extraordinary opportunities to improve the defense industrial base through our commercialization strategies. In addition, it is essential in meeting our goal to insert commercial technologies into military systems," said Sue Payton, Deputy Undersecretary of Defense for Advanced Systems and Concepts. "The DOD TTIPT provides us the

opportunity to train our people and resolve policy and process issues together. This 10th TTIPT meeting and the outstanding results of the DOD Tech-

nology Transfer Program are proof positive that they are both helping us accomplish our mission."

Early on the TTIPT established committees that could work throughout the year on areas of common interest such as marketing, mechanisms, and metrics with a goal of bringing vital topics before the TTIPT meeting for presentation and discussion.

Training has always been an important part of the meeting. Training topics have included: the right time and place to use the various mechanisms like CRADAs, Cooperative Agreements, Partnership Intermediary Agreements, Educational Partnership Agreements, etc.; leveraging the IP— negotiating strategies, patent portfolio analysis, marketing the technology effectively; export control and international CRADAs; and developing strategic plans and business plans for a lab IP program.

Another consistent theme has been how to use Partnership Intermediaries like DOD TechLink (www.techlinkcenter.org), DOD TechMatch (www.techmatch.com), Maryland's TEDCO, or the World's Best Technology Showcase (www.wbtshowcase.com) to promote lab IP deal flow. Room is always made for the lawyers. They help the TTIPT learn how to do it right, avoid pitfalls, share their perspective on pending legislation, and they remind all that good IP management is good technology transfer.

NASA KSC, from page 2

unit among its product line.

Technicians have just one portable unit instead of multiple components, like the pressure indicator, pressure generator, and data logger, to carry to calibration sites. The unit is portable and battery-powered, with compact size and a lightweight case that can be carried to cramped, remote locations, even up stairs or ladders. It is a significant improvement over the expensive primary pressure standards that the transducers had to be tested against.

Additionally, it boasts superb pressure reading accuracy, as well as fast, stable, repeatable, and accurate pressure generation.

The user can also select or configure pressure generation profiles.

It offers calibration data storage with download capability, data and

process security, dual reference pressure sensors to cover a wide range of test pressures at the highest accuracy possible, and calibration times as fast as 5 minutes per unit, which generates significant laboratory cost savings. It also has a simple PDA user interface. Most attractive, even with all of these added features, it is almost half the cost of a laboratory benchtop calibrator.

Most manufacturers of low-pressure calibrators do not use true low-range reference pressure sensors. Instead, they use higher range sensors and attempt to achieve high accuracy at lower pressures through intricate microprocessor correction.

The resulting higher levels of noise and instability limit the ultimate accuracy available. Setra uses patented stretched diaphragm, capacitive sen-

sor technology for the highest output at the lowest pressures.

Another area where typical low-pressure calibrators fall short is generating a stable, repetitive, and accurate test pressure.

Most companies use microsolenoid pressure generation and regulation, a technique that applies small pressure pulses to the positive and negative pressure test volumes to regulate the test pressure. During active pressure regulation, this system generates pneumatic noise.

Setra uses NASA's low-differential pressure generation technology, which produces maximum pressure setting sensitivity with minimum noise.

The pressure generation is accomplished using a piston/cylinder arrangement, whereby the differential pressure sensor under test has both

high and low pressure ports connected to the cylinder in a push/pull configuration. As the stepper motor-driven piston advances in the cylinder, it applies positive pressure to the high port of the test pressure sensor and negative pressure to the low port. The resulting pressure generation system is sealed and immune to outside environmental noise, and has twice the sensitivity as a single-sided piston and cylinder.

Setra has automated the patented NASA Low Pressure Generator using micro-stepping motors and true low-pressure reference transducer feedback. This combination has produced the first portable, low-pressure calibration system capable of performing in-situ calibrations of high accuracy, very low differential pressure transducers.

More info: Jeffrey A. Kohler, ASRC Aerospace, 321-861-7158, jeffrey.kohler-1@ksc.nasa.gov, <http://technology.ksc.nasa.gov>

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Hydrogen Research, Development, Demonstration Program Act of 1990 (P.L. 101-566), and reauthorized by the Hydrogen Future Act of 1996 (P.L. 104-271).

The panel will review and make recommendations to the Energy Secretary on implementation of programs and activities under that act, as well as safety, economic and environmental consequences of technologies for production, distribution, delivery, storage, or use of hydrogen energy and fuel cells.

The Energy Secretary is expected to appoint 12 to 25 committee members who will be selected with a view to achieving a balanced committee of representatives of domestic industry; academe; professional societies; government agencies; federal labs; previous advisory panels; and financial, environmental and other appropriate organizations.

HTAC members will serve for a term of three or fewer years and may be reappointed.

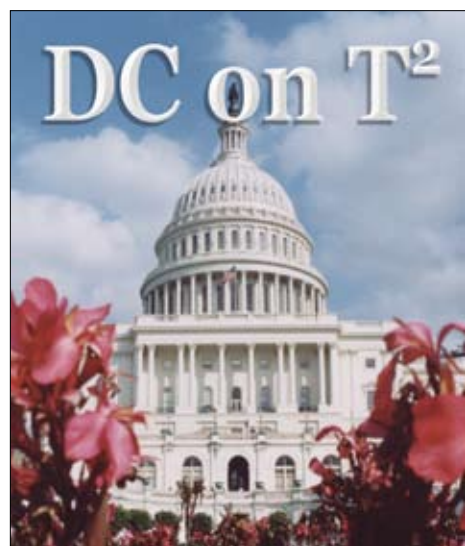
The committee is expected to meet twice per year. Some members may be appointed as special government employees (SGEs) and will be subject to certain ethical restrictions as a result.

The selection team will send membership recommendations to DOE's Assistant Secretary for Energy Efficiency and Renewable Energy, who in turn will submit a list of recommended candidates to Energy Secretary Bodman.

For more details, write to htac.nominations@ee.doe.gov.

LANL BSL-3 Facility EIS

The National Nuclear Security Administration (NNSA) is to prepare an Environmental Impact Statement (EIS) on operation of a biosafety level



3 (BSL-3) facility at the Los Alamos National Laboratory (LANL) in New Mexico.

The U.S. has identified the possible use of biological weapons as an emerging threat to homeland security; consequently, R&D activities involving biological select agents have been increased.

Biological select agents are viruses, bacteria, rickettsia, fungi, and toxins

whose possession, transfer, and use is controlled by the Department of Health & Human Services (HHS), Centers for Disease Control and Prevention (CDC).

Biosafety levels is a system devised by CDC of well-defined facilities, equipment, and procedures designed to minimize risk of exposure to potentially hazardous agents for laboratory workers and the outside environment. Several entities, including the Department of Homeland Security (DHS), are now interested in conducting such work at LANL. Other federal agencies in the intelligence and security communities, as well as military organizations, have also expressed interest in working with LANL in this field.

Research conducted at the BSL-3 facility would be solely defensive in nature, serving to identify and mitigate the threats that may be used against the U.S. in a biological attack.

The public scoping period for the EIS started last week and continues until Dec. 29. Meetings to provide the public with an opportunity to present comments, ask questions, and discuss their concerns regarding the EIS with NNSA officials were held Dec. 13 (Los Alamos), Dec. 14 (Santa Fe) and Dec. 15 (Española).

For more details of the EIS and public scoping process, contact Lisa Cummings at 1-866-506-2862; e-mail at LANL_BSL3_EIS@doeal.gov.

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FLC SELECTS SUBMISSIONS FOR 2006 T² PUBLICATION

On November 28-29, 2005, the selection committee met to choose the submissions that would fill the pages of *Federal Technology Transfer 2006*.

First published in 2004, *Federal Technology Transfer* highlights and details technologies and expertise that had their genesis in federal research centers and are now used in everyday life.

Eighty-seven technology transfer success stories were submitted by federal laboratories, agencies, and research centers, with 34 selected for the publication based on their merit and timeliness.

The selection committee was comprised of FLC Communications Chair Al Jordan of NASA Marshall Space

Flight Center, FLC Legal Issues Chair Bob Charles of the Army Medical Research and Materiel Command, Mary Archuleta of the Air Force Research Laboratory, Balki Balakrishnan of the National Institutes of Health, Sara Baragona of the U.S. Army Medical Research and Materiel Command, and FLC Washington, DC Representative Gary Jones.

The selected success stories came from the Air Force Research Laboratory, Los Alamos National Laboratory, NASA, Brookhaven National Laboratory, the National Institutes of Health, the Agricultural Research Service, Pacific Northwest National



Left to right: Sara Baragona, Mary Archuleta, Al Jordan, Gary Jones, Bob Charles, and Balki Balakrishnan.

Laboratory, Savannah River National Laboratory, U.S. Army and Navy research laboratories, Idaho National Laboratory, National Vehicle Fuels Emission Laboratory, Lawrence Berkeley National Laboratory, National Renewable Energy Labor

atory, and Sandia National Laboratories.

The 2006 publication is scheduled to go to print in April 2006. To order a copy of the 2004 and 2005 editions, contact the FLC Management Support Office at 856-667-7727.

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