FLC NewsLink

April 2004

Published by the Federal Laboratory Consortium for Technology Transfer

The Only Government-wide Forum for Technology Transfer

T² Events

Society of Petroleum Engineers
Tulsa, Okla.
April 19-21, 2004

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FLC National Meeting
Mission-Driven Partnerships
San Diego, Calif.
May 3-7, 2004

•

Small Business Innovation Research (SBIR) Conference
Dallas, Texas
May 11, 2004

•

Bio 2004
San Francisco, Calif.
June 6-9, 2004

•

FLC Mid-Atantic Regional Meeting
Flintsone, Maryland
Sept. 14-16, 2004

•

FLC Mid-Continent Regional Meeting
South Padre Island, Texas
Sept. 7-10, 2004

Go to: <www.federallabs.org> for a complete calendar of events

T² Fact

In 1440, Johannes Gutenberg, a German goldsmith, invented the first printing press with replaceable letters. The Gutenberg press made mass production of printing materials inexpensive, allowing for mass distribution of publications. Guttenberg's Bible was the first book to be published in volume.

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Chem Manufacturers Curious about ARS's Ethanol Production

Agricultural Research Service (ARS) scientists have developed a method for cleaning up fermentation feedstocks derived from biomass.

Researchers **Nancy Nichols**, **Bruce Dien**, **Rodney Bothast**, and **Maria Lopez** headed the innovation process.

Current methods for inhibitor abatement are costly, rely on physical or chemical treatments, generate waste, and result in water waste. This process is inexpensive and easy to use, generates no waste, and conserves water.

Agricultural biomass, such as corn fiber or corn stover, is a potential alternative to starch in the production of ethanol or other fermentation products. Treating biomass with dilute acid releases sugars for fermentation, but also causes toxic chemicals to form.

More than 35 potentially toxic compounds, including acetate and furan-and-phenolic compounds, have been identified. Current methods for removing these compounds produce wastes and/or are costly. ARS's technology uses a microorganism, isolated from soil, to detoxify the sugar stream. This technology targets multiple inhibitory compounds and totally eliminates the most problematic ones. The microorganism is added to the biomass mixture prior to fermentation.

Microbiologist Nancy Nichols and biochemical engineer Bruce Dien add yeast to a bioreactor to begin ethanol fermentation.

Glucose derived from cellulose, and potentially from other sugars, can then be fermented to ethanol or another product. This invention addresses one of the obstacles in using biomass to produce ethanol by offering a new method for detoxifying biomass-derived sugar streams.

This technology is in early-stage development and will require additional research for large-scale commercial use.

It would be of interest to chemical manufacturing companies. Companies manufacturing ethanol and alternative fuels also would benefit from the technology.

Patent Application S.N. 10/350,591, "A Microorganism for Biological Abatement of Inhibitors in Toxic Fermentation Substrates," was filed on January 24, 2003.

More info: Tara Weaver-Missick, 301-504-6965, or <twm@ars.usda.gov> FLC

AFRL's Rocket Component Test Stand Completed

Work has been completed on modernizing one of the nation's largest rocket engine component test stands.

Used more than 30 years ago for Apollo moon mission F-1 rocket engine production testing, Test Stand 2-A is the Department of Defense's (DOD) largest liquid rocket engine component development stand.

Test Stand 2-A is the only DOD stand capable of performing full-scale rocket thrust chamber development testing in the 750,000-pound thrust class. Its primary use is for the development testing of advanced rocket engine turbomachinery and combustion components, but it can be used for numerous high pressure and flow-rate propulsion systems.

The California Space Authority supported congressional funding of the modernization as part of the California Space Infrastructure Program.

AFRL's Test Stand 2-A

Located at the **Air Force Research Laboratory**'s (AFRL) Edwards Research Site, Test Stand 2-A is part of AFRL's nearly $3-billion facilities that have provided the nation with rocket propulsion research, development and test capabilities for more than 50 years.

According to Robert Drake, AFRL Propulsion Directorate's Chief Operations Planner, "One of the functions of DOD laboratories is to provide special

See Test Stand, page 4

DC on T²

by Dave Appler
FLC Washington, DC Representative

I would like to provide some information on manufacturing recently released by the president and the Commerce Department (DOC).

At the direction of Secretary of Commerce Don Evans, the DOC hosted a series of 20 manufacturing roundtables. These roundtables, composed of representatives from various manufacturing industries, were asked by DOC to "identify the roots of the manufacturing sector's current challenges and the specific obstacles that government policy might pose to U.S. manufacturing competitiveness."

Dave Appler

A copy of the 90-page report resulting from the roundtable discussions was issued by the DOC on January 16, 2004. Its full

See DC on T², page 5

Army Researchers Partner with TEDCO

by Tonya Johnson
ARL Public Affairs

Braving freezing rain and slippery roadways, technology professionals attended a partnering showcase on Feb. 3 at the **Army Research Laboratory** (ARL).

ARL and the Maryland Technology Development Corporation (TEDCO) co-hosted "Providing a Competitive Advantage Through Innovative Nanotechnology," a showcase geared to small businesses and entrepreneurs.

"It was a very successful event," said **Cynthia Tootle**, chief of the ARL Technology Transfer Office. "Even with inclement weather, we had a good turnout. The people who attended the showcase expressed great interest in the technology we have developed here. Since the conference ended, I received phone calls and e-mails from people who have expressed interest in collaborating with us to work on existing technologies or create new ones."

Cynthia Tootle addresses TEDCO attendees.

The showcase allowed individuals and businesses from the Washington, D.C. area and across the United States to learn more about ARL facilities, equipment, and technical expertise.

See ARL Partners, page 4

Fed Labs Flash

Technology Transfer Notes

Shank Steps Down

Charles Shank

Lawrence Berkeley National Laboratory (LBNL) Director **Charles V. Shank** announced his intention to leave his position by the end of the year.

During his tenure, he oversaw tremendous scientific growth and achievement, expanding programs in astrophysics, computing, genomics and nanoscience, and doubling LBNL's budget. He joined LBNL and the University of California-Berkeley faculty in September 1989.

"The opportunity to work with outstanding people in science at Berkeley Lab is unparalleled," said Shank. "Through our work as a Department of Energy Office of Science laboratory, we have made a great difference for the nation, opening new questions about energy in the universe, sequencing the human genome, developing nanoscience as a national endeavor, and achieving scientific discoveries through advanced computing.

"These advancements would not be possible without the dedicated support from the staff of the Laboratory, the University of California, and the Department of Energy." Shank will be returning to the Berkeley campus as a faculty member. He is a tenured professor in three departments—Physics, Chemistry, and Electrical Engineering and Computer Science.

In a prepared statement, President Robert C. Dynes said Director Shank "has made a major contribution to the cause of scientific advancement in this country.

"His leadership of Berkeley Lab for the last 15 years has played an important role in helping the laboratory achieve ever-increasing levels of scientific achievement and furthering its reputation as one of the world's leading centers of technological excellence."

2004 SBIR Conference

Entrepreneurs, scientists, researchers, engineers and small business owners throughout the Southwest can learn how to apply for government grants of more than $1.5 billion to conduct research and development. To help secure these funds, the North Texas Small Business Development Center, the Greater Dallas Chamber of Commerce, and the North Texas Technology Council are hosting the 2004 Small Business Innovation Research (SBIR) Conference.

The May 11 event will take place from 8:00 a.m. to 5:30 p.m. at the Bill J. Priest Institute for Economic Development Conference Center, 1402 Corinth St., Dallas, Texas.

Program managers who administer SBIR/STTR/ATP grants and executives at companies that have received grants will share insights, information and experiences, and provide advice on how to improve grant applications.

The cost is $125 per person. Sign-in for pre-registered participants begins at 7:00 a.m. on the day of the conference. Seats are expected to sell out quickly, so early registration is highly recommended.

More info: <www.gdc.org> or call William Adjei, 214-712-1937

PNNL's Peters Leads the Way

Dr. Leonard K. Peters, Director of the Department of Energy's **Pacific Northwest National Laboratory** (PNNL), has been selected to receive the Oak Ridge Associated Universities (ORAU) Outstanding Leadership Award.

The award was established to recognize individuals who have demonstrated sustained leadership and support of ORAU activities involving member universities and/or national laboratories. The award also includes a grant to support a conference or symposium, which PNNL will use to hold a conference on atmospheric chemistry. Peters, who came to PNNL in 2003, has a distinguished career in research; he most recently served as Vice Provost for Research at Virginia Polytechnic Institute and State University, where he managed its diverse $230-million research program.

He earned his bachelor's, master's and doctorate degrees in chemical engineering from the University of Pittsburgh, where he was recognized as a Distinguished Alumnus in 1997.

Peters will be recognized for this honor at the 59th annual meeting of the Council of Sponsoring Institutions, which will be held on March 9 in Washington, D.C.

PTO Bill Passed by House

by Neil MacDonald
Federal Technology Watch

The U.S. Patent and Trademark Fee Modernization Act (H.R. 1561), which would enact several reforms of the Patent & Trademark Office (PTO), was passed by the House March 3. Provisions in the bill would permit PTO to increase some existing fees, introduce new processing charges, and cut pendency periods for patent applications by using new electronic initiatives.

In a statement, Acting Under Secretary for Intellectual Property Jon Dudas thanked House members for "reinforcing their confidence" in the nation's intellectual property system by supporting H.R. 1561.

"Implementation of [PTO's] 21st Century Strategic Plan marks an important new chapter in the history of the 200-year old U.S. patent system," said Dudas.

Praise for the House action also came from the U.S. Chamber of Commerce. "Full funding of PTO reflects Congress' commitment to American innovation," Chamber Vice President Bill Kovacs said.

Lab Work

KCP and Pantex Form Partnership, Improve Performance

In 2001, Pantex BWXT invited the **Kansas City Plant** (KCP) to share best business practices with the goal of improving productivity, quality, delivery performance, and capacity constraints without increasing costs.

KCP has worked closely with Pantex employees to make significant improvements, particularly in the areas of pit repackaging, mass properties, quality and root cause analysis, information systems, and knowledge preservation.

"The past few years have seen several opportunities for Pantex and KCP to share information and technical expertise," said Virgil Hughes, one of the original group of KCP managers who went to Pantex when BWXT Pantex took over.

Pantex scientist Tim Quinlin holds the product of the knowledge preservation process—a disk that will help future workers understand the synthesis and formulation of high explosives.

"Both plants have worked together to improve the weapons complex by leveraging corporate resources and knowledge as it relates to nuclear resources and production," said Hughes.

The success of the collaboration hasn't escaped the notice of the National Nuclear Security Administration (NNSA).

KCP's Six Sigma team received a Defense Program Award of Excellence for its work at Pantex, with specific commendations for improvements in pit repackaging, evaluation of capacity constraints in mass properties, and improvements in tooling process workflow and efficiency.

Knowledge Preservation

Jim Lula, a staff engineer in KCP's materials engineering organization, went to Pantex not because they were having problems, but because they need to capture knowledge before it goes out the door.

Lula, a Six Sigma Black Belt, went to Texas to help Pantex employees capture some of their critical processes. "Pantex is just like us: they go for quality," said Lula.

"They are very exacting about the purity of materials and particle size in their high-explosives formulations."

Lula examined Pantex's processes, interviewed experts, studied procedures, and then made extensive process maps. After reviewing initial maps, experts familiar with the processes made suggestions for further refinement.

The final product includes 57 process maps linked to 195 videos covering the process overview, step-by-step instructions, and interviews with subject-matter experts.

As a result of assistance from KCP, Pantex now uses Six Sigma process mapping, as well as the KCP web-based delivery system, to capture knowledge for critical process information.

FLC NEWSLINK

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Tech Watch: Federal Laboratory Technologies Ready for Transfer

Removing Mercury from Gas

The U.S. Environmental Protection Agency has proposed a regulation to reduce mercury emissions from coal-fired power plants.

Activated carbon injection (ACI) is projected to be the most commonly employed technique for removing mercury from flue gas.

However, a notable drawback in the use of activated carbon for mercury capture in power plant flue gas is its annual operating cost.

Activated carbons are expensive, ranging in price from $500 to $3,000 per ton.

The resulting annual cost of activated carbon for mercury cleanup at a typical 500-MW coal-burning power plant is projected to be around $5 million.

The Thief Process is a radical variation of ACI, in which partially combusted coal from the furnace is extracted by a lance and then reinjected into the ductwork downstream of the air preheater.

Recent results at the **National Energy Technology Laboratory**'s 500-lb/hr pilot-scale combustion facility show similar removals of mercury for both the Thief Process and ACI.

Independent verification of the sorbent activity at a pilot plant that uses a slipstream from a Wisconsin utility has been accomplished.

A patent for the process was issued in February 2003. The Thief sorbents are cheaper than commercially available activated carbons and exhibit excellent capacities for mercury.

The Thief Process holds great potential for significantly reducing the cost of removing mercury from flue gas.

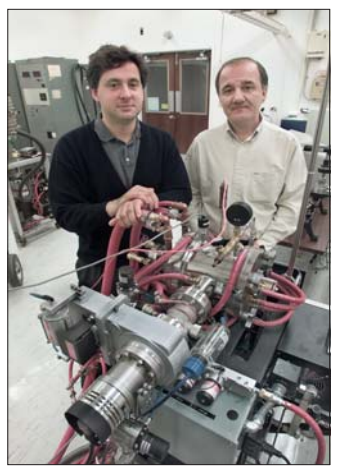
The technology is available for licensing to interested parties.

More info: Contact Lisa Jarr at (304) 285-4555 for more information on licensing the Thief Process.

LBNL Researchers Develop Bone Binding Glass

by Lynn Yarris

More than $2 billion is spent yearly in this country on hip and knee implants, plates and pins for broken bones, dental implants, and other reconstructions. An estimated 11 million persons in the United States have at least one such medical implant, and this number is growing.



Eduardo Saiz and Antoni Tomsia

Now, a biologically active glass developed by researchers at **Lawrence Berkeley National Laboratory** (LBNL), which enables metal implants to bond with bone, could significantly extend the lifetime of artificial hips, knees, and other medical reconstructive devices.

Most implants today are made from either titanium-based alloys or alloys made from a mix of cobalt and chromium. Both possess excellent mechanical properties, but neither is able to bond with bone. As a result, these metals rub against the bones into which they've been implanted, creating wear and tear that shortens implant lifetimes. For example, according to the National Center for Health Statistics, hip implants generally fail after 15 years.

"What has been needed is a coating that adheres to the metal surface of the implant and also promotes the formation of hydroxyapatite (the inorganic component of bone)," said Antoni Tomsia, a materials scientist with LBNL's Materials Sciences Division, which has maintained a long-term program for the study of ceramic/metal interfaces. Working with physicist Eduardo Saiz, Tomsia has developed a silicate glass that is bioactive and a simple "enameling procedure," whereby metal implants can be coated with micron-sized (20-200 microns thick) layers of this glass. These glass layers can be fine-tuned at the metal-glass and glass-bone interfaces so the coating binds with both metal and bone.

"It is impossible to design a single coating that will serve all purposes, so what we have done is to create a set of two to three graded layers of coating," said Tomsia. "The glass is cheap to make and the enameling is inexpensive." Tests with titanium and cobalt-chromium showed that the inner surface of the bioactive glass coating adheres to the metal without degradation. Upon exposure to simulated body fluid during in vitro testing, a layer of hydroxyapatite will form on the coating's outer surface.

"Implants that are more durable and longer lasting will promote faster healing rates and should be accessible to a wider range of patients," said Tomsia. Over the next year, he and Saiz will be extending their studies to in vivo testing on animal models.

More info: Contact Lynn Yarris of LBNL's Technology Transfer Department at 510-486-6467 or at <TTD@lbl.gov>.

Proven to Work

Fuel-Cell Microbes' Double Duty: Treat Water, Make Energy

Something big may be brewing on the sewage treatment circuit thanks to a new design that puts bacteria on double duty—treating wastewater and generating electricity at the same time.

The key is an innovative, single-chambered microbial fuel cell.

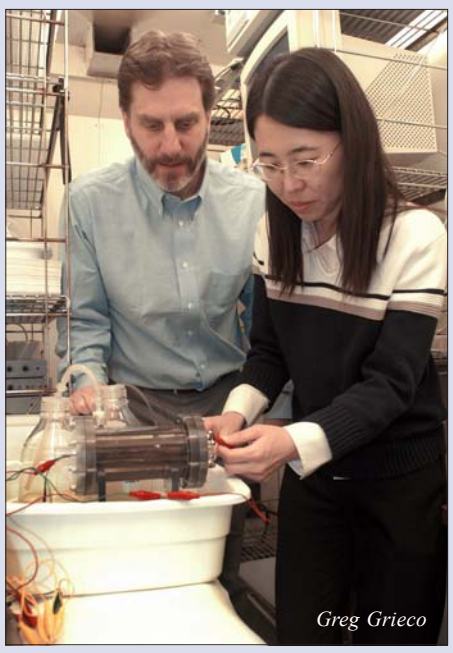
A fuel cell operates akin to a battery, generating electricity from a chemical reaction. But instead of running down unless it's recharged, the cell receives a constant supply of fuel from which electrons can be released. Typical fuel cells run off of hydrogen. In a microbial fuel cell, bacteria metabolize their food—in this case, organic matter in wastewater—to release electrons that yield a steady electrical current.

The single-chambered prototype, developed by researchers at Pennsylvania State University with support from the National Science Foundation (NSF), allows the process to work efficiently in wastewater.

In their paper, the researchers suggest that the improved design could usher in a "completely new approach" to wastewater treatment: "If power generation in these systems can be increased, microbial fuel cell technology may provide a new method to offset wastewater treatment plant operating costs, making advanced wastewater treatment more affordable for both developing and industrialized nations."

An $87,000 grant from NSF's Small Grants for Exploratory Research (SGER) program supported the project. Such SGER—called "sugar"—grants foster small-scale, innovative, preliminary research on untested, novel ideas.

They also sometimes fund quick-response research on natural disasters and other unanticipated events or support research to "catalyze" emerging innovations.



At their Pennsylvania State University lab, Bruce Logan watches as research colleague Hong Liu checks the circuit connections on the prototype microbial fuel cell.

The single-chambered microbial fuel cell is essentially a plexiglass cylinder about the size of a soda bottle. Inside are eight graphite anodes (or negative electrodes), which the bacteria attach to, and a hollow central cathode (or positive electrode). Electrons flow along a circuit wired from the anode to the cathode.

A steady flow of wastewater pumped into the chamber feeds the bacteria. Bacterial digestion of the wastewater's organic matter unleashes electrons into the electrical circuit and positively charged hydrogen ions into the solution. Those ions reduce the solution's oxygen demand, a key goal of wastewater treatment.

The hydrogen ions also pass through a proton exchange membrane to reach the cathode. Meanwhile, a hollow tube within the cylinder contains the cathode, which is exposed to air. At the cathode, oxygen from the air, hydrogen ions coming through the membrane, and the electrons coming down the circuit combine to create water.

In other microbial fuel cells, microbes have been fed glucose, ethanol and other fuels but, according to Bruce Logan, the Penn State professor of environmental engineering who leads the project, "Nobody has ever tried this with domestic wastewater. We're using something thought to be completely useless."

The single-chamber design is important, he said, because it facilitates a "continuous flow-through system," a design consistent with existing treatment systems.

By introducing air passively through the tube within the cathode layer, this model also greatly reduces the need for more aggressive-—and energy-demanding—aeration schemes to treat the wastewater. Thus, as it creates electricity, it also reduces the need for it.

Each year in the United States, about 33 billion gallons of domestic wastewater are treated at cost of $25 billion; much of which pays for energy. On a larger scale, the microbial cell could significantly reduce the energy costs of wastewater treatment.

It's not a small "if."

"We've got to make it cheaper," said Logan. "We can't afford to use graphite rods on the anodes, Nafion as the proton-exchange membrane, and platinum on the carbon cathode.

"But we're already making progress on that. Substantially cheaper systems are just around the corner."

Meanwhile, amid the slime on the anodes, countless and various bacteria play distinctive roles in the breakdown of the wastewater and the creation of electricity.

"This is a whole community reaction," said Logan. "We're just beginning to appreciate and understand the complex bacterial community needed to generate electricity from wastewater."

More info: Contact Bruce Logan at 818-863-7908 or <blogan@psu.edu>

Test Stand, from page 1

purpose facilities that are not practical for the private sector to own or operate.

AFRL has traditionally supported the development and installation of a full-scale liquid rocket component development test capability needed for development of new rocket engine technologies."

The test stand will enable indepth research leading to the development of long life-cycle rocket engines.

The facility will be a key element in solving a difficult and major challenge in economical space launch propulsion. That challenge is the development of long life-cycle, highly operable rocket engines with operational characteristics similar to jet engines. Many of the costs currently associated with accessing space are found in the short life-cycle expectancy and high maintenance of first-generation reusable rocket engines like the Space Shuttle main engine.

Technology improvements will lead to rocket engines that are able to propel hundreds of missions between major overhauls.

Test Stand 2-A is the Air Force's key facility for large-scale development and validation of these technologies.

Historically, the facility was dormant following the Apollo program, but some of its components were instrumental in the development of the Space Shuttle main engine. Later, modernization of the facility became a priority for the Advanced Launch System and National Launch System programs, the National Aerospace Plane, and the liquid rocket technology programs of the AFRL.

Test Stand 2-A's completion and its ability to develop and test rocket engine components adds to AFRL's assets of unique facilities that provide the nation with complete research, development, and test capabilities for rocket propulsion technology progress.

Nearly every American rocket-propelled satellite, missile, or launch vehicle has been touched by the technology research, development, or testing conducted at the Edwards Research Site.

For more information, contact Ranney Adams of AFRL Edwards Research Site Public Affairs at 661-275-5465.

FLC Elections

The FLC 2004 national and regional election process is underway.

National positions up for reelection include Finance Officer, Recording Secretary, and three Member-at-Large positions.

Regional positions include Regional Coordinator and Deputy Regional Coordinator for the Far West, Mid-Atlantic, and Midwest regions.

Absentee ballots are available for those not attending the FLC national meeting, *Mission Driven Partnerships*, May 3-6, 2004, in San Diego, Calif.

If attending the meeting, voters can cast their ballots onsite.

If you have any questions regarding the elections, please contact Julie Evans of the FLC Management Support Office at 856-667-7727.

ARL Partners, from page 1

The TEDCO conference brought together businesses, academia, and laboratories to foster technology transfer.

Technology transfer officials from ARL, TEDCO, and the state of Maryland provided information on funding programs and opportunities to support technology transfer projects.

The event also gave ARL researchers the chance to promote their technology, which might have commercial applications.

Other presenters at the showcase included officials from Paratek Microwave, based in Columbia, Md., who shared their success story of being able to patent their materials technology for wireless communications devices from ARL. The company has grown to more than 50 employees and $50 million in financing since it was started in 1998.

"Paratek's successful commercialization of its technology by working with a federal lab is a good example of a partnership that provides the Army with a source for valuable technology while keeping the cost down," said John Miller, ARL director.

"These partnerships serve the important purpose of accelerating the delivery of advanced technologies to the soldiers on point for our nation. We hope we are able to establish more successful partnerships as the result of today's event." Nanotechnology was the focus of the conference because it is a growing field and an area in which ARL has made strides. Some of the technologies scientists and engineers are working on include spectroscopic detection of bacteria and nanoscale chemical and biological sensing.

ARL and TEDCO started planning the showcase last summer.

TEDCO is a part of the Maryland Department of Business and Economic Development. Its purpose is to maintain and enhance the state of Maryland as a leader in technology.

TEDCO's mission is to continue to foster a technology economy that can create and aid businesses throughout all regions in Maryland.

TEDCO works with other federal laboratories to hold similar conferences throughout the year.

ARL is planning to host the conference again in 2006.

"This conference is important because it facilitates cooperation among businesses, universities, and the laboratory in a way to develop innovative technology and the next generation of products for our soldiers and also possibly have commercial appeal," said Tootle. "People have commented that this was one of the best conferences they have attended."

Inside the FLC

FLC T² Training Scheduled for San Diego Meeting

The FLC Education and Training (E&T) Committee, under the leadership of E&T Committee Chair, **Lynn Murray**, is providing a full menu of high-quality, professional-level technology transfer training courses and materials to federal laboratory personnel at the FLC's national meeting, *Mission Driven Partnerships*, May 3-6, 2004, in San Diego, Calif.

The FLC Education and Training Committee will provide a host of relevant sessions to provide cutting-edge professional development for anyone involved in technology and commercialization.

Kicking off the national meeting activities on Monday, May 3, will be two major day-long training sessions—FLC Technology Transfer Fundamentals Training and an advanced training session on intellectual property management and licensing/negotiating.

University-approved continuing education units (CEUs) will be offered for both courses.

Fundamentals Training

Ideal for newcomers to the T² field or as a refresher for T² veterans, "FLC Technology Transfer Fundamentals Training" is designed to provide a thorough foundation in the background, concepts, and practical knowledge required to transfer federally funded technologies from the laboratory to the marketplace.

FLC subject area experts will describe the nuts and bolts of the technology transfer process they practice daily and provide practical insights into how to accomplish technology transfer. This day-long course will include:

- An introduction to the FLC, presented by Larry Dickens, FLC Vice-Chair and Commercialization Manager at Oak Ridge National Laboratory
- An overview of technology transfer, presented by Doug Blair, Air Force Technology Transfer Program Manager at the Air Force Research Laboratory
- Intellectual property issues, presented by Jesse Erlich, a prominent intellectual property attorney
- The Cooperative Research and Development Agreement, presented by Kelly McGuire, chief of the Office for Research and Technology Applications at the U.S. Army Aviation and Missile Command, Research, Development, and Engineering Center; and Regional Coordinator of the FLC Southeast Region
- An overview of the FLC Technology Locator capabilities and procedures, presented by Sam Samuelian, coordinator of the FLC Technology Locator Service
- Technology transfer marketing, presented by Vic Chavez, manager, Small Business Initiative and Related Programs, Sandia National Laboratories
- A conclusion presented by Lynn Murray, chair of the FLC Education and Training Committee and Chief, Communications and Technology Outreach at the John A. Volpe National Transportation Systems Center.

Advanced Training

A team of seasoned professionals with extensive experience in licensing and negotiating intellectual property will offer "Intellectual Property Licensing and Management/Negotiations," a day-long advanced training session for federal T² specialists and anyone seeking to improve their patent, licensing, and negotiating skills.

The presenting team will include Chris Jansen, an expert on effective negotiating; Gib Marguth, consultant to industry and government on the management of intellectual assets;

Emmett Murtha, past president of the Licensing Executives Society; and Jesse Erlich, patent attorney and intellectual property expert. Topics to be covered include:

- Negotiating styles, skills, and common sense—getting to an agreement and avoiding win/lose outcomes
- The anatomy of a license
- Negotiating with inventors, entrepreneurs, and licensees
- Intellectual property protection and one-on-one interaction with inventors, patent examiners, and others.

The session will conclude with a question and answer session with the presenters focusing on the idea that "intellectual property protection and licensing are business propositions."

If you are interested in either training course, please sign up for it when you register for the national meeting.

Registration fees are $115 for either course, with an additional fee of $25 if you would like CEU credit.

For additional information regarding these courses, contact the FLC Management Support Office at 856-667-7727.

Other Education and Training Activities

The E&T Committee is continuing to refine existing and develop new education and training courses and tools.

The FLC Technology Transfer Resources Database (T² TRDB) is an easily searchable compendium of technology transfer training resources (courses, seminars, lectures, workshops, etc.) gathered from the laboratory system and elsewhere.

The T² TRDB can be accessed online at <www.federallabs.org/training>.

The E&T Committee has also begun a major effort to develop online training in various aspects of technology transfer.

For additional information about the E&T Committee and FLC E&T activities, contact Lynn Murray of the Volpe National Transportation Systems Center at <murrayl@volpe.dot.gov>. FLC

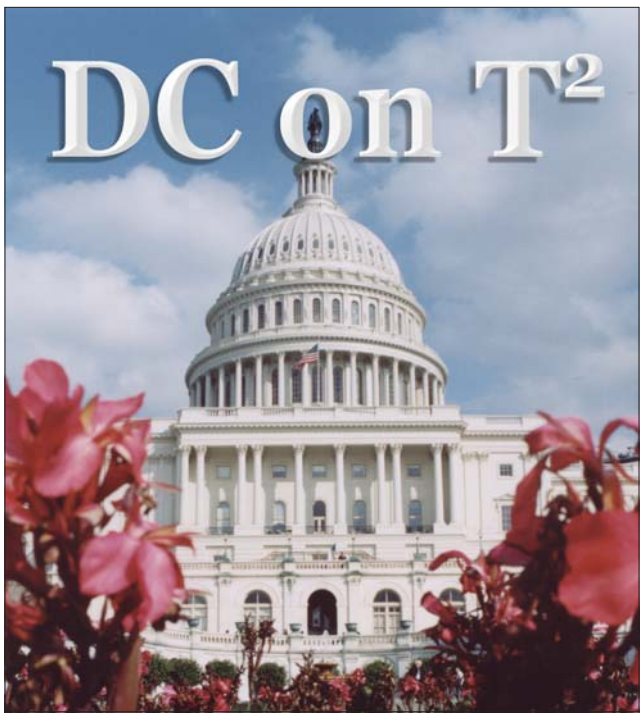
DC on T², from page 1

contents can be accessed at <http://www.commerce.gov/DOC_MFG_Report_Complete.pdf> or a four-page Executive Summary can be accessed at <http://www.commerce.gov/DOC_MFG_Report_Summary.pdf>.

As an outgrowth of the DOC's manufacturing initiatives, the president has taken two actions. Last September, he announced his intention to establish a new Assistant Secretary of Commerce for Manufacturing. It is expected that the president will forward his nomination shortly, along with a legislative proposal outlining duties and responsibilities for this new position to the Congress.

The president's other action was to issue Executive Order 13329 on February 24, 2004, directing federal agency heads, in their Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs to give high priority to manufacturing-related research and development.

The first chapter of the report provides an overview of the domestic and international economic issues facing American manufacturing, and identifies the competitive environment in which U.S. manufacturers compete. This chapter presents a number of trend-style statistical charts that examine and compare manufacturing in a number of ways, including per capita output of the U.S. versus western Europe, as a percentage of U.S. GDP, in comparison to total job growth, etc. These comparisons point to a complex picture of an almost constant and steady job loss over the last 30 years, huge productivity gains both in terms of U.S output and in comparison to other industrial nations, and shifts in types of industries and the nature of their manufacturing practices. Global manufacturing has been fundamentally reshaped by vast improvements in computing, communications, and distribution.



(I personally wonder if we are on the threshold of having the same quantum changes as a result of sensor technology and nanotechnology. And, what role the federal labs will have in enabling those changes.)

The second chapter captures the input from the roundtables of small, medium, and large manufacturers from a diverse set of different manufacturing sectors. They identified issues where government policies and practices hinder U.S. competitiveness, and cited opportunities for government investment in manufacturing-focused R&D.

The roundtable participants identified six areas that require immediate attention on the part of government:

1. A stronger government focus on manufacturing and its ability to operate competitively.
2. A stronger focus on fiscal and monetary policies that strengthen U.S. manufacturing.
3. A need for government to match industry in controlling manufacturing costs.
4. Government R&D investment that keeps the U.S technologically ahead of countries trying to emulate our advanced technology-driven economic model.
5. A desire for government to address shortcomings in the U.S. educational system.
6. The need to ensure that international trade and monetary policies concerning global competition in manufacturing are free, open, and fair.

Write Dave at <dappler@flcdc.cnchost.com> or contact him at 703-414-5026. FLC

MISSION DRIVEN PARTNERSHIPS

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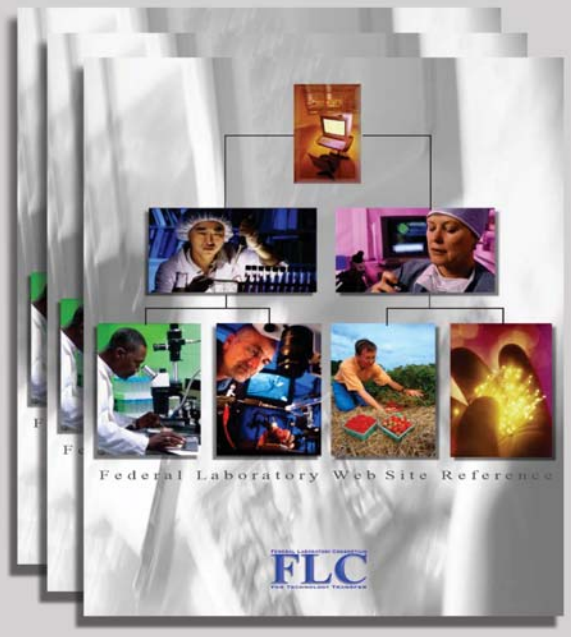

The FLC Laboratory Web Site Reference

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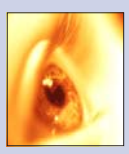

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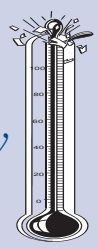

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