



Federal Laboratory Consortium Mid-Continent Region

What's New In The Region.... May 2005

MID-CONTINENT & FAR WEST "FUEL UP" IN MONTEREY!

Program planning is underway for this year's regional meeting held jointly with the FLC Far West in Monterey, CA. The meeting is scheduled for September 13-16, 2005. Participants will explore resources and initiatives in the area of alternative fuels. With gasoline prices over \$2.00 per gallon and with rapidly diminishing oil reserves, this conference offers an intensive review of the technologies, funding and programs at federal laboratories, state-borne initiatives and incentives, and mechanisms that hasten commercialization while buoying the economy.

Training highlights include a marketing and commercialization segment taught by Dr. Ken Dozier, Executive Director of both the USC Engineering Technology Transfer Center (ETTC) and NASA Far West RTTC. A special session, Market.com, will include invited guest Andrew Hamm of the Silicone Valley San Jose Business Journal. Other topics include Fairness of Opportunity, the Importance of Branding, Writing Collateral Material, etc.

Regional technology transfer awards will also be celebrated. Special consideration will be given to alternative fuel technologies, programs and marketing plans. Nomination forms can be downloaded from the meeting website.

Meeting location is the Portola Plaza Hotel where a government per diem room rate of \$132 will be offered on a first come basis. As an extra bonus, the world famous Monterey Jazz Festival takes place on September 16-18, 2005—montereyjazzfestival.org. For more information, check out the meeting website:

flc-fw.org/meeting



As an extra bonus, the world famous Monterey Jazz Festival takes place on September 16-18, 2005.

Rodriguez & Covey Make Clean Sweep In Mid-Continent

The Mid-Continent Region's run for new officers yielded two candidates known for being result driven as well as carrying long FLC activity lists.

First up – the new Mid-Continent Regional Coordinator is Patrick Rodriguez, Director of the Technology Transfer Support Group for the Air Force Phillips and Air Force Research Laboratories through the State of New Mexico and New Mexico Tech.

Pat's involvement with the FLC spans 21 years. He served as Member at Large, Deputy Regional Coordinator, and Regional Coordinator. He chaired and participated on most FLC committees, and mentored the FLC Assistive Technology Demonstration Project through its developmental phase. He has received various awards including FLC Laboratory Representative of the Year in 2002.



Pat Rodriguez—*"There's a lot more to T² than just CRADAs and licensing."*



Deb Covey's plans include *"increasing laboratory, universities, businesses and state and local government participation."*

For 22 years, Pat has been in the business of technology transfer for the Air Force.

During this time, he cultivated the longest serving Partnership Intermediary Agreement with Phillips and AFRL, boasting one of the most active

educational outreach programs in the state of New Mexico for grades K-12. In fact, over 75,000 students have been through the program. The program received national recognition through the Yates Award for Technical Excellence in Technology Transfer - Team Award for Education Outreach 1997-1998.

Pat is also Vice-Chairman of the Air Force Committee on Technology Transfer Policy. He is a strong believer in the Small Business Innovation Research Program (SBIR) and has used SBIR as a primary technology transfer tool for 15 years.

(Continued on page 3, Election)

EDUCATIONAL PARTNERSHIP SHINES AT AIR FORCE RESEARCH LABORATORY

The Air Force Research Laboratory at Kirtland Air Force Base (KAFB) in Albuquerque, NM, is well known for their educational partnerships. In fact, the laboratory's fame extends outside of New Mexico where it has been touted as a national model for educational outreach. The programs are performed jointly with the State of New Mexico and based on long-range goals of the State and participating school districts. The programs emphasize various areas of study relating to the transfer and advancement of technology.

Among these programs is the Air Force STARBASE® La Luz. It is dedicated to raising the interest and knowledge skills of "at-risk" youth in math, science, engineering, and technology. AF STARBASE® La Luz is designed to provide a "bridge" of support for these students through the difficult transition from elementary to middle to high school to college.

AF STARBASE® La Luz has three main components: Mars Missions Flight for 5th graders, Providing Engineering and Technology Experiences to Students (PETES) middle school Flights, and Students Planning & Conducting Engineering (SPACE) Flight for high school students. The key goals of each Flight are to instill a feeling of excitement and appreciation for math, science, engineering, and technology, and a desire to continue in the following year's Flight.

The program begins with 5th grade classroom participation in the Mars Missions Flight, the Elementary School Flight. The Mars Missions Flight is based on the Challenger Center for Space Science Education's acclaimed *Marsville, the Cosmic Village®* program.

The phase or the three PETES Flights at-risk" middle school students attend a series of technology enriched, curriculum days at KAFB. The goal of this Flight is for students to develop enough basic skills to realize they can aspire to careers in math,

science, engineering, and technology. Curriculum includes such courses as Properties and States of Matter, Bernoulli's Principle, and Four Forces of Flight. AF Core Values are stressed.

After completing PETES Core Curriculum Flight, students move on to the PRS Flight designed to enhance students' skills relevant to Space Vehicles and Directed Energy career fields. What follows next is the PETES Flight where students participate as a team to design a high school Research & Development (R&D) project.

Under the guidance of volunteer AFRL scientists and engineers, high school students work on a three-year real-world R&D project. Seniors complete a

college-level Introduction to Systems Engineering course to complete their SPACE Flight. More information: www.de.afrl.af.mil/TTE.



CMMI TOOL WRENCHES DEAL FOR KANSAS CITY PLANT

CMMI or Capability Maturity Model Integration is a standard model within the defense industry. It is built around a maturity concept with five defined levels of improving performance. Most organizations take years to even achieve a CMMI level 3 rating, working through levels 1 and 2 before attempting level 3.

Knowing this did not deter the NNSA Kansas City Plant (KCP) for going straight for a level 3 rating in its test equipment organization. In their preparation, KCP engineers looked for a tool that would help them meet their aggressive schedule. They ended up creating their own - a database to automate data collection, manage document inventory, provide a visual status scoreboard, and streamline evidence verification.

The resulting database helped them manage and track

14,000 pieces of information to meet more than 428 specific requirements. Bringing all the information under the control of one system allowed KCP to achieve in 15 months what many organizations take nearly four years to do. The database also dramatically expedited the appraisal process. Besides streamlining the process, it also caught the attention of other organizations looking for help in meeting CMMI requirements.

...system allowed KCP to achieve in 15 months what many organizations take nearly four years to do.

The KCP entered into an end-user license agreement with Honeywell Engineering Systems & Services who wanted to use it in their own pursuits. The database was later licensed to Level Five Solutions, a startup company formed exclusively to develop and market the new product. The company went on to develop a web-based enterprise version of the software to work with different clients. Their packaged product provides an appraisal planning and support system, complete with automatic update features. With the spin-

off of a new business to market that tool, now other businesses can achieve similar success.

(Continued from page 1, Election)

The region's new Deputy Coordinator is Deb Covey, Manager of the Office of Industrial Outreach & Technology Administration at the Department of Energy's Ames Laboratory. In 1989, Deb began her career at Ames in the Fossil Energy Program. A few years later, she accepted a position managing the Intellectual Property Office and over the ensuing years, began negotiating CRADA and WFO Agreements. She assumed her current position in 2001 which includes the ORTA and the Intellectual Property Office. Prior to Ames, she worked as a Telephone Engineer for Southwestern Bell Company. Deb also served as an FLC Executive Board member at large in 2002-2004 and on various committees.

Deb said she was looking forward to working with Pat and envisions increasing laboratory, universities, businesses and state and local government participation in the educational and technology transfer activities of both the Mid-Continent Region and the National FLC. Deb would also like see the region provide seed funding for applied research activities that engage the technologies and expertise inherent in the region's laboratories.

Look for more to come from this new leadership in the Mid-Continent Region.

SPRAKE STEPS IN AS FLC VICE-CHAIR

J. Susan Sprake of Los Alamos National Laboratory (LANL) will be stepping down as FLC Mid-Continent Regional Coordinator to assume the role of Vice Chair of the Federal Laboratory Consortium (FLC). Sprake has served for the past four years as Mid-Continent Regional Coordinator leading the region through a variety of projects and initiatives, the most recent being the regional fire fighting project.



Ms. Sprake will assume the role of Vice Chair in June and will be in charge of the FLC's Planning & Policy Committee and will assist FLC Chair Ed Linsenmeyer in the management of FLC. As the LANL laboratory representative, Sprake will continue to be an important participant in Mid-Continent activities.

CHEVRONTEXACO AND LOS ALAMOS TEAM IN ENERGY SOLUTIONS

ChevronTexaco and Los Alamos have established an alliance to develop energy industry solutions derived from DOE and Department of Defense technologies. The initial focus will be on advanced well systems' solutions. This is one of many cooperative projects between ChevronTexaco and Los Alamos including Radio Frequency Telemetry and Sensor Technology for collection and transmission of oil well data and acoustic interferometry.

The Alliance for Advanced Energy Solutions is the most recent relationship formed as part of ChevronTexaco's strategy to develop unique, new research and educational

structures in the energy industry. This alliance keeps in pace with Los Alamos' mandate to advance the national, economic and energy security of the United States and to promote scientific and technological innovation to support that.

The latest development in this ongoing relationship is the addition of Otis G. (Pete) Peterson, Ph.D. as an Industrial Fellow to be located at the ChevronTexaco facilities in Houston. Peterson's role at Los Alamos was the Deputy Group Leader of Advanced Diagnostics and Instrumentation in the Chemistry Division.

As an Industrial Fellow, Peterson will interact at the highest levels in an effort to help find solutions to technical challenges and initiatives at ChevronTexaco. Peterson

is expected to return to Los Alamos every 4 to 6 weeks to brief staff on potential areas of collaboration and to stay informed of the latest technical developments. This prestigious position has been found very rewarding for previous industrial fellows and the companies they temporarily call home.



Otis "Pete" Peterson of LANL named Industrial Fellow to ChevronTexaco.

Los Alamos National Laboratory is managed by the University of California for the National Nuclear Security Administration of the US Department of En-

ergy.

ChevronTexaco is one of the world's leading energy companies with more than 47,000 employees. More information: lanl.gov/opportunities/techtransfer/index.shtml

HOTEL PLANNED FOR GALAXY'S ORBIT

Robert Bigelow, owner of the Budget Suite Hotel Chain, is looking way beyond the horizon for his next hotel location. He is currently actively building the first orbiting space hotel with a planned room rate charge of about \$1 million a night. Bigelow is investing \$500 million dollars of his own holdings and hired veteran space-travel engineers to see his dream come true. Bigelow Aerospace is located about 10 miles from Las Vegas and houses full-scale mock-ups of the Nautilus space-modules.

The design is based on a NASA project called TransHab, an inflatable space-station module that is launched in a compressed state and powered by solar panels that unfold from the bulkhead. The basic architecture was created by NASA senior engineer William Schneider in an effort that began in 1997. It was seriously considered as an alternative to the International Space Station Module before the TransHab project was abandoned in the year 2000. Enters



Bigelow announced a \$50 million prize for a new piloted spacecraft to service the Nautilus Space Cruiser. For more information: bigelowaerospace.com

Bigelow who bought the exclusive development rights from NASA and entered into a Space Act Agreement with the agency to allow him to work with former TransHab NASA engineers as well as tracking down Schneider who is now retired. Technical assistance is ongoing between Bigelow from NASA Johnson Space Center in seeing the commercial inflatable module "hotel" to completion by the end of the decade. JSC is also considering using the completed technology for trips to Mars or the Moon.

Whether it is commercially viable let alone possible is yet to be seen. However, two millionaires have already paid \$20 million each for weeklong vacations aboard the International Space Station, so Bigelow believes a small commercial market does exist. Bigelow also plans to offer his station to any commercial enterprise that's interested such as drug companies, researchers or even Hollywood producers.

NEW MEXICO BUSINESSES RECEIVE 9000 EDGE

New Mexico 9000 is a year-long, classroom style instruction program that provides coursework, consulting services, and ISO certified lead auditors to work with participating individuals in the implementation of an ISO 9001:2000 quality management system in their companies. Through this program, New Mexico small businesses receive technical assistance to achieve ISO 9001:2000 compliance/certification at a very affordable cost.

New Mexico 9000 was established through an alliance among the State of New Mexico's Economic Development Department, Los Alamos National Laboratory, Sandia National Laboratories, and Honeywell Federal Manufacturing & Technology.

RMOTC LENDS HAND IN OIL CRUNCH

In response to an increased demand for qualified workers in Wyoming's oil and gas industry, the Wyoming Contractors Association (WCA) and Rocky Mountain Oilfield Testing Center (RMOTC), operated by the Department of Energy, have teamed to bolster The Rocky Mountain Oil and Gas Training Program.

The collaboration was the solution to Wyoming's burgeoning oil industry driven by record high prices to expand as quickly as possible. Currently, the Rocky Mountain Region has 302 oil rigs operating and 150 rigs planned to be up and running by June 1.

RMOTC will provide access to their Teapot Dome oil field and facilities for students to receive hands-on training. The collaboration puts 9,200 acres, two working rigs, a full complement of oil field equipment and rolling stock, classrooms and a research facility at the disposal of the Rocky Mountain Oil and Gas Training Center. The goal is to provide a full-service oil and gas research and training program.

The training collaboration has given the state an economic development push by increasing the number of higher paying jobs in Wyoming. RMOTC officials also plan for the training to yield research and development needs in the oil industry.

The training is designed to give students real life conditions with schedules encompassing seven days, 12 hours each day. Those who complete the multi-phase course will qualify for a CDL license. About 700 individuals have already expressed interest in the training. The program itself is capable of training 1500 to 2000 people a year in all facets of the oil and gas surface industry.



VP Charlie Ware of the Wyoming Contractors Association, left, and Clarke Turner, Director of Rocky Mountain Oilfield Testing Center, NPR-3, sign a collaborative agreement to form The Rocky Mountain Oil and Gas Training Program, Friday, April 8

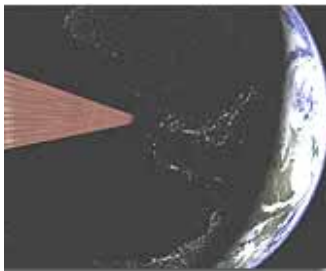
LANL WEAVES SUPER STRONG PARTNERSHIP

Aircraft half the weight of today's planes, cars so strong they survive the worst crashes and even elevators that may whisk passengers into outer space are among the goals of a major research partnership signed between Los Alamos National Laboratory and Carbon Designs Inc., (CDI) a Dallas-based company.

The partnership will develop ultra-strong fibers made of carbon nanotubes for a vast array of applications. CDI, headed by former LANL staff member Brad Edwards, and Dallas investor Brent Waller, initially will pump \$2 million into the project with hopes to bring novel, super-strong materials to market by late 2006.

Based on an invention by Yuntian Zhu of LANL's Superconductivity Technology Center (MST-STC), the Cooperative Research and Development Agreement is one of the largest sponsored research agreements ever signed by the Laboratory. CDI also received an exclusive license for the Laboratory's intellectual property and may obtain additional rights to patents that result from the collaboration.

Although their diameter is roughly one-ten-thousandth that of a human hair, carbon nanotubes are 100 times stronger than steel, more durable than diamonds and provide the highest thermal conductivity of any material. Among potential applications are military body armor, power transmission lines, suspension bridges and artificial muscles – even fuel cells are a possibility. Outside partners planning to work with the Los Alamos team include Sandia National Laboratories and the University of Kentucky. *More information: www.lanl.gov/opportunities/techtransfer/index.shtml*



"...largest sponsored research agreements ever signed by LANL."

FROM FARM FIELD TO FUEL TANK: AMES LAB INVESTIGATES

Soydiesel, or biodiesel, is one of the products gaining favor as an alternative fuel because it is clean burning and biodegradable and can be made from a renewable resource - soybeans. It is also viewed as an environmentally friendly industrial solvent used for the removal of graffiti or for cleaning up oil spills.

Better and more efficient methods of converting soybean beans into biodiesel are essential. A key to the conversion process are catalysts. Ames Laboratory Biorenewable Resources Consortium and Iowa State University Center for Catalysis are finding more efficient catalysts thanks to a grant from Science with Practice. The success of the program has led to a \$1.2 million grant from the U.S. Department of Energy and U.S. Department of Agriculture. These funds will be used to study new technologies for production of methyl ester, or biodiesel, from soybeans.

To create biodiesel from soy oil, a chemical reaction is needed that replaces the glycerol in the oil with methanol. This process called transesterification requires the use of a

(Continued on page 6), Biodiesel



RMOTC RELISHES ROLE IN FOSSIL/ RENEWABLE ENERGY

The United States is approaching a new crisis in the availability of fossil fuels caused by a leveling off of domestic oil and gas production and the increased demand from developing Asian countries, particularly China and India. As renewable energy technologies mature, the United States may be able to utilize these technologies to solve our fossil energy deficit. For example, electrical utilities that use gas-fired turbines are affected by gas price volatility, and may turn to wind power as a cheaper alternative when gas prices spike higher.

The Rocky Mountain Oilfield Testing Center, operated by the Department of Energy in Casper, WY, is currently involved in developing the use of renewable energy sources in several ways:

- Identifying practical ways to use energy conservation and to utilize renewable energy sources such as wind and solar to increase the efficiency of oil and gas extraction.
- Researching ways to use energy efficiently by reducing op-



Rocky Mountain Oilfield Testing Center in Casper, Wyoming.

erating costs without reducing productivity. Energy sources to be considered are electricity, diesel, gasoline, and natural gas.

- RMOTC's director, Clarke Turner, has teamed with Bill Becker, former director of Energy Efficiency and Renewable Energy (EERE) to form the Rocky Mountain Fossil and Renewable Energy Partnership between regional fossil and renewable energy developers, research institutions, and state energy offices. The partnership combines the resources

of the Department of Energy (DOE), the National Laboratory system, universities, and private sector resources for co-development of fossil and renewable energy in production.

- The Western Governors Association (WGA) has adopted a policy resolution to meet growing energy demand in the Western United States. A series of task forces will examine the clean energy potential from a number of sources.

RMOTC's Jim States will serve on the wind and geothermal task forces. For more information, contact Jim States at Jim.states@rmtc.doe.gov or Doug Tunison at doug.tunison@rmtc.doe.gov

(Continued from page 5, biodiesel)

homogeneous catalyst. Because it is a caustic and corrosive base, the remaining sodium methylate in the biodiesel product mixture cannot be reused and must be neutralized adding unwanted expense in the biodiesel process. Recycling the sodium methylate is also a problem.

Since the success of biodiesel comes down to costs, it is essential to reduce production and cleanup costs associated with using homogeneous catalysts. The solution to both problems could lie in the development of heterogeneous catalysts which can be easily separated by filtration and can be reused many times, further lowering production costs. Catalysis is currently a research thrust of the Ames Lab's Biorenewable Resources Consortium and Victor Lin, an Ames Lab chemist and an ISU assistant professor of chemistry. Through the DOE/USDA grant, Lin and West Central are collaborating to scale up production of test heterogeneous catalysts, analyze tests and design equipment to mass produce new catalysts.

Other types of catalysts and "super" catalysts are being investigated such as those that would convert other types of feedstock to biodiesel such as corn, poultry fat and waste grease. For more information, contact Kelly Gibson with Media Relations at Ames Laboratory—kgibson@ameslab.gov

**New
Contacts**

Regional Contacts:

- **FLC-MC Regional Coordinator**—Patrick Rodriguez, AF Research Lab, 505-846-0857, rodriguez@kirtland.af.mil
- **FLC-MC Deputy Coordinator**—Deb Covey, Ames Laboratory, 515-294-1048, covey@ameslab.gov
- **Program Coordinator**—Ann Kerk sieck, 870-241-3382, ann@zyn.com

calendar

- 7th Annual NIH SBIR/STTR Conference (Bethesda, MD), Thursday, July 28, 2005 - Friday, July 29, 2005, sbirworld.com
- 2005 Fall National SBIR/STTR Conference (Albany, NY), Monday, November 14, 2005 - Thursday, November 17, 2005
- FLC Mid-Continent and Far West Regional, Portola Plaza, Monterey, CA, September 13-16, 2005, www.flc-fw.org