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FLC NewsLink

November 2003

Federal Laboratory Consortium for Technology Transfer

The Only Government-wide Forum for Technology Transfer

T² Events

BioVenture Forum East 2003
Philadelphia, Penn.
Nov. 17-19, 2003

•

RD&D Conference and Expo
Washington, D.C.
Nov. 17-20, 2003

•

CMMI Technology Conference
Denver, Colo.
Nov. 17-20, 2003

•

Technology Transfer Conference and Expo
Chicago, Ill.
Feb. 23-26, 2004

•

Society of Automotive Engineers
Detroit, Mich.
March 8-11, 2004

•

World's Best Technology 2004
Arlington, Va.
March 21-23

•

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

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

T² Fact

Earle Dickson, an employee of Johnson and Johnson, developed the Band-Aid® in 1920 for his accident-prone wife, Josephine. Johnson and Johnson, a company launched by pharmacist Robert Johnson and his two brothers, produced large, dry, cotton and gauze dressings, which remained sterile in germ-resistant packaging until opened.

- Steve Dennis

Inside

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www.federallabs.org

NASA, DOE Dedicate New Brookhaven Facility

Facility Research Could Slow Aging and Lead to New Treatments for Cancer

NASA Chief of Staff **John Schumacher** and U.S. Department of Energy (DOE) Office of Science Director **Raymond Orbach** joined **Brookhaven National Laboratory** (BNL) Director **Praveen Chaudhari** in inviting guests to a ceremony to mark the opening of the new NASA **Space Radiation Laboratory** (NSRL) at Brookhaven.

"The NASA Space Radiation Laboratory Facility will play a key role in our ability to expand our human exploration horizons throughout the solar system, as the second century of flight unfolds," said Schumacher.

"A strong partnership between NASA and DOE's Office of Science made possible the construction of this cutting-edge facility," said Orbach. "We look forward to years of productive and collaborative science here."

In NSRL's target room, Adam Rusek checks the cabling of one of the four ion chambers used for beam imaging.

The $34-million facility, jointly managed during a four-year construction project by the DOE's Office of Science and NASA's Johnson Space Center, is one of the few places in the world that can simulate the harsh cosmic and solar radiation environment found in space. The new facility employs beams of heavy ions extracted from BNL's booster accelerator, the best in the United States for radiobiology studies. The NSRL features its own beam line dedicated to radiobiology research, as well as state-of-the-art specimen-preparation areas.

Scientists from NASA, national laboratories and institutes in the U.S. and Europe, and universities in the U.S., Europe, and Japan will use NSRL.

"Brookhaven welcomes national and international users to this unique facility, where scientists will have one of the best

See Brookhaven, page 6

R&D Grants Awards to Glenn Research Center

Six new products developed at NASA's **Glenn Research Center** (GRC), Cleveland, Ohio, were recognized on October 16 at a black tie awards program at Chicago's Navy Pier for the pioneering effort of the involved individuals.

These innovations were chosen by an independent judging panel and the editors of *R&D Magazine* as some of the top 100 most technologically significant products introduced into the marketplace over the past year.

Microgravity analysis software system

The six products chosen are described below.

A software system called the **Microgravity Analysis Software System** (MASS) operates on a continuous basis to receive the various streams of acceleration data generated by the space acceleration measurement system and the microgravity acceleration measurement system aboard the International Space Station. This voluminous set of time contiguous acceleration data is ingested, processed and archived by MASS. The real-time web-based data plots and post-processed acceleration data archives generated by MASS are employed by microgravity researchers interested in the acceleration environment under which their microgravity experiments were conducted. **Kevin McPherson**, **Ted Wright**, **Kenol Jules** and **Richard DeLombard**, aerospace engineers in GRC's Microgravity Environment and Telescience Branch, teamed with Ken Hrovat, Eric Kelly, Gene Liberman, Nissim Lugasy and Tim Reckart of Zin Technologies for the MASS development.

NASA Glenn Technology Transfer Team

See Glenn Research, page 4

DC on T²

by Dave Appler
FLC Washington, DC Representative

Continuing on the theme from my last report, appropriation bills continue to be the first order of business in Congress.

Dave Appler

Three FY 2004 appropriations were enacted by October 1: Defense, Homeland Security (the first appropriation for this new cabinet agency), and the Legislative branch.

Note: For those of you trying to see where the money is in homeland security for various programs, I've seen estimates that as much as 40% of the funding for homeland security is being appropriated in other agencies in addition to the Department of Homeland Security (DHS).

See DC on T², page 5

Lab in the Limelight

Human Factors Factors in on Human Aviation

Exciting new research is taking place to achieve a better understanding of the integral role human factors plays in both current and future aviation systems.

It is happening in the **Research Development and Human Factors Laboratory** (RDHFL) at the **Federal Aviation Administration** (FAA) **William J. Hughes Technical Center**, near Atlantic City, N.J.

This unique research environment is specifically designed to enable scientists to measure and assess human performance and workload.

The FAA's RDHFL, located at the William J. Hughes Technical Center in Atlantic City, N.J, is a state-of-the-art research facility designed specifically to support research in aviation human factors.

Specialists also investigate how new technologies should be integrated into air traffic control and airway facilities systems in the laboratory.

See Lab in Limelight, page 4

Fed Labs Flash

Technology Transfer Notes from Within the Federal Laboratory Community

Propulsion Engineer Receives SAE Medal

Peter Lamm of the **Air Force Research Laboratory**'s (AFRL) Propulsion Directorate received the Charles M. Manly Award for his technical paper, "Analysis and Simulation of a UAV Power System." Lamm, along with the co-authors of the paper, received the award on September 10 at the Aerospace Congress and Exhibition at the Palais des Congres in Montreal, Quebec, Canada.

Lamm, a project engineer in the Electrical Technology and Plasma Physics Branch of the AFRL Propulsion Directorate, works in the Power Division researching and developing modeling and simulation technologies for power and integrated power and propulsion systems. He is also a member of the Institute of Electrical and Electronics Engineers, the American Physical Society, the American Institute of Aeronautics and Astronautics, the Society of Automotive Engineers, Sigma Pi Sigma, and Tau Beta Pi.

The award is named for Charles M. Manly, who served as SAE president in 1919. Following Manly's death in 1919, his associates formed the Manly Memorial Board of Award as a remembrance and tribute to his service to the aeronautical engineering field.

The award, which consists of a certificate, bronze medal and honorarium, was established in 1928.

Proposing Adaptation

Agricultural Research Service (ARS) geneticist **Michael D. McMullen** has won an agency award for a research proposal to search for genes that control agronomically important traits in maize.

McMullen won the agency's T.W. Edminster Research Associate Award for the top-ranked proposal for the ARS 2004 Postdoctoral Research Associate Program. Located in the ARS Plant Genetics Research Unit at Columbia, Mo., McMullen will receive $100,000 in funding over two years to carry out this research.

Working with research evolutionists John Doebley from the University of Wisconsin-Madison and Brandon Gaut of the University of California-Irvine, McMullen has developed a novel approach to identify genes that control agronomic traits. The scientists compared the genetic diversity in maize cultivated by Native Americans and maize improved by maize breeders to the genes in wild maize accessions. Maize that has been cultivated over the years by humans has been selected for traits that have helped it adapt to diverse agricultural systems. The researchers are now trying to find exactly which genes are responsible for the adaptations.

CDC Moves in on SARS

The **Centers for Disease Control and Prevention** (CDC) has posted the working draft version of its "Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS)" on its web site. The SARS Plan is a working document that outlines the concepts and strategies that would guide the U.S. response in the event of a SARS outbreak. It also describes many of the activities needed at federal, state, and local levels to prepare for and respond rapidly and decisively to a reemergence of SARS. State and local health departments, hospitals and other public health providers will have an opportunity to comment on the draft and provide input to an effective SARS preparedness plan for the United States.

Charryse Birge of the CDC's Division of Viral and Rickettsial Diseases works with an ABI PRISM Genetic Analyser, a tool used in SARS research.

Army to Grant Licenses to Genencor

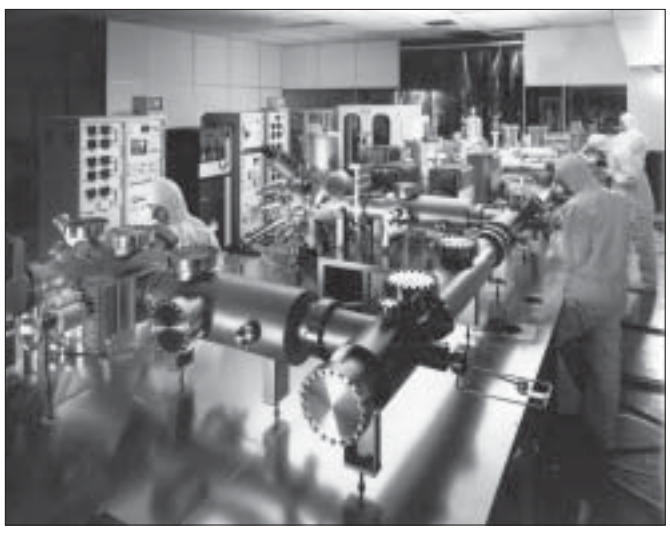
by Neil MacDonald
Technology Commercialization

The U.S. Army's **Soldier and Biological Chemical Command** may grant exclusive licenses to Genencor International, Inc., of Rochester, N.Y., for "Enzymatic detoxification of organophosperous compounds" (U.S. patent number 5,928,927) and "One-step purification process for organophospherous hydrolase enzyme" (U.S. patent number 6,469,145).

Lab Work

Army Electronics Yields Manufacturing Tech

A technology for improving the manufacturing yield of infrared detectors has been developed at the **U.S. Army Communications-Electronics Command, Research, Development, and Engineering Center**'s Night Vision and Electronic Sensors Directorate (NVESD).



The microfactory semiconductor processing facility

In 1990, the NVESD laboratory established a semiconductor "microfactory." Its purpose was to provide a facility for government, university, and industrial scientists to develop radical new processes for the fabrication of infrared sensors.

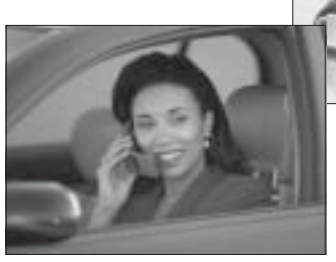
In 1992, **Dr. John H. Dinan** of NVESD, the recipient of the 2002 FLC Innovative Partnership Award, studied manufacturing yield data for the current generation of infrared detectors and the military requirement for the next generation.

He concluded that a single semiconductor material — mercury cadmium telluride (MBE)— could be used for all generations and that MBE was the most attractive deposition technique.

After Dinan developed the microfactory, he chose the Small Business Innovative Research (SBIR) program as the vehicle for developing a real-time control technique. A J.A. Woollam Co., Inc., proposal was chosen. Woollam proposed to develop the SE technique and guide it from a laboratory curiosity to a robust semiconductor processing technology.

In anticipation of the high yields that the use of will provide, NVESD transferred this technology to Rockwell Scientific Company (RSC) in Camarillo, Calif., and to Raytheon Vision Systems (RVS) in Goleta, Calif., where it is now being used to fabricate all next-generation mercury cadmium telluride devices for military systems.

It is interesting to note that RSC and RVS purchased their equipment from the Woollam Co., the original SBIR innovator! The Woollam Co. has now sold dozens of these instruments to customers for a variety of applications, including lasers, cell phone circuitry, and CD players.



The NVESD technology should advance everything from eyeglasses to cell phones.

FLC NewsLink

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Tech Watch: Federal Laboratory Technologies Ready for Transfer

Berkeley Resolute on DNA

Researchers from the **Lawrence Berkeley National Laboratory** have developed a high resolution imaging process for rapid physical mapping of DNA fragments.

Nonisotopically labeled DNA probes are hybridized to linearized or circular DNA molecules bound to a solid substrate and stretched by a hydrodynamic force.

LBNL's imaging process will advance genome research through the assembly of physical genome maps.

The respective map position of the probe is determined by multicolor fluorescence microscopy and image analysis. Mapping can be performed in size intervals ranging from approximately 20 kilobasepairs (kb) to more than 1 megabasepairs (Mbp), while probes as small as 500 bp can be detected. Measurements are typically precise to within 5% of the mapping interval. Based entirely on fluorescence in situ hybridization and image analysis, this non-isotopical process is fast, accurate and inexpensive.

The technique has numerous applications in genome research, such as the assembly of high resolution, physical maps of the human genome and the characterization of libraries constructed from single clones by insertion of foreign DNA.

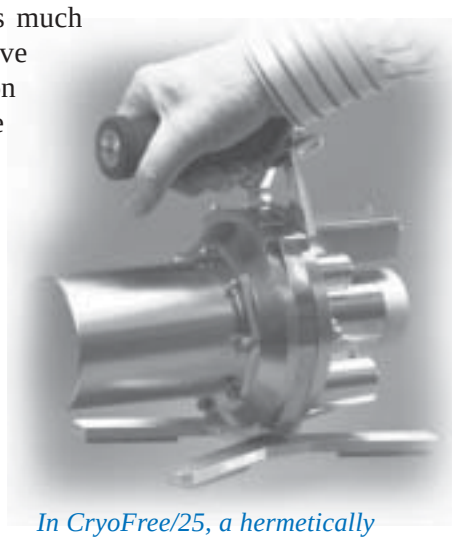
More info: LBNL Technology Transfer Department, <www.ttd@lbl.gov>

Livermore's Antiterrorist Tech Secures the Homefront

by Gabriele Rennie

Until recently, the U.S. relied on large oceans and friendly bordering countries to provide security against a terrorist attack. It was believed that an attack would most likely arrive in the form of missiles launched from land, air, or sea.

The terrorist threat now lies much closer to home. Experts believe that a possible method of weapon delivery will be a suitcase concealing contraband radioisotopes hidden in a car or a plane's luggage compartment. Or, a seemingly harmless shipment of medical or industrial radioisotopes could mask potent radioisotopes destined for a dirty bomb—an ordinary explosive laced with radioactive material.



In CryoFree/25, a hermetically sealed germanium gamma-ray detector is coupled to a small, low-power cooler that is available commercially. The unit weighs 4.5 kilograms and can operate for 7 to 8 hours on two rechargeable lithium-ion batteries.

To counter such threats, security agencies are looking for a new generation of portable radiation detection devices that will allow military, law-enforcement, public-health, and medical personnel to easily and quickly identify radioactive materials and distinguish among them.

A **Lawrence Livermore National Laboratory** (LLNL) team has developed a portable, handheld germanium radiation detector called CryoFree/25 that can duplicate the energy resolution and efficiency of a laboratory gamma-ray spectrometer.

Physicist **John Becker** and engineers **Norman Madden**, **Lorenzo Fabris**, and **Chris Cork** are collaborating on the project. Begun in 1998, the project is sponsored by the Department of Energy's Office of Nonproliferation Research and Engineering, which is part of the Office of Defense Nuclear Nonproliferation.

"The team's goal," said Madden, "was to create the smallest possible handheld, mechanically cooled, gamma-ray spectrometer with the largest amount of germanium.

The more germanium, the higher the detection efficiency." As part of LLNL's Measurements Science Team, originally formed at **Lawrence Berkeley National Laboratory** and now part of the Physics and Applied Technologies Directorate, the team had previously developed technology for a radiation detector that is onboard a NASA spacecraft. CryoFree/25 technology may also prove valuable for the Department of Energy's work monitoring the nation's nuclear weapons stockpile and protecting weapons and nuclear energy facilities from terrorists.

The team is hopeful that government agencies will take advantage of the portable unit's technology, which can be adapted to many applications.

More info: www.llnl.gov

Proven to Work

Sandia Ready to Transfer Tool to Advance Medical Diagnoses

A revolutionary handheld laser device that in a few moments can detect and then track blood disorders has been patented in prototype by scientists at **Sandia National Laboratories** (SNL) and the **National Institutes of Health**.

The scanner, which makes blood samples part of the laser generation process, immediately detects sickle cell anemia, as well as nanometer-scale changes in cell structure like those imposed by the AIDS virus.

The device, called a biocavity laser, also is better able to distinguish between cancerous and noncancerous cells than pap smear tests, which visually analyze relatively small numbers of cervical cells.

The biocavity device also should allow observers to monitor unrestricted cell growth—cancer—and cell death (apoptosis) as these processes take place. (Apoptosis—cell suicide—is thought to eliminate unwanted human tissue and to aid with the proper growth of organs, limbs, and neurons.)

For victims of terrorist biological or chemical attacks, the transportable unit is expected to greatly reduce the time needed to analyze dangerous materials invading the bloodstream. Diagnosis could be made on the spot, thus facilitating treatment when speed is crucial.

Widespread adoption of the device would end delays in obtaining results from blood tests, when blood taken by a nurse is shipped to a lab for analysis.

Princeton University physicist Robert Austin described the biocavity laser as "really an innovative technology."

By using it, said Paul Gourley, device project manager at SNL, "It's possible to take a blood sample containing millions of cells and extract information about each cell in a few minutes. The results are quantifiable. If no cell is cancerous, we get a standard light signal. A cancerous cell gives a bright flash at different wavelengths."

SNL's biocavity laser could revolutionize medical diagnostics.

Because the readout relies on light-emitting semiconductors, in most usages the cells do not have to be killed and stained—the most typical laboratory procedure. Instead, researchers can watch changes in cells as they occur—in real time.

The microcavity laser is basically a tool to study cell structure changes," said Gourley, "and could even be used for sequencing DNA." Present methods of analyzing living cells involve flow cytometers, which merely shine a laser light through one cell at a time.

The work is funded by SNL's Laboratory-Directed Research and Development Program, which funds speculative defense-related projects, and by the Department of Energy. Preliminary interest has been expressed by blood and cell analysis companies, and by pharmaceutical companies, according to Gourley.

In wafer form, the device is activated by a laser microscope about the size of a telephone receiver that acts as an energy source and reads output from the biocavity laser like a supermarket scanner reads bar codes. To make a commercial biochip, quarter-sized electrical power sources already exist and bulky optical components would be replaced by an optical fiber.

A small, no-frills system can distinguish between cells in a sample and offer a spectral analysis (without image) on a laptop computer for a cost between $5,000 to $15,000, Gourley estimates.

A more complete setup for laboratory research to scan a laser over a surface or pump materials such as large quantities of blood through it would cost about $70,000.

More info: Paul Gourley, plgourl@sandia.gov, (505) 844-5806

Glenn Research *from page 1*

A **high temperature, solid lubricant composite** provides low friction and wear to sliding contacts operating from sub-ambient to 1500 degrees Fahrenheit. Available as a plasma spray coating (PS 300) or as a free-standing powder metallurgy product (PM300), these lubricant products have been fully commercialized for high temperature steam valves and as bushings for furnace conveyors.

Vigyan Pilot Weather Advisor

Other applications include high temperature foil air bearing lubricants for oil-free turbomachinery, such as turbochargers and gas turbines, automotive valves and high temperature seals. The lubricants were developed and tested by GRC's **Dr. Christopher Dellacorte** of the Tribology and Surface Science Branch and **Brian Edmonds** of the Manufacturing Engineering Division.

Weather information will be provided continuously to aircraft cockpits using the **WSI InFlight System**, which graphically displays both radar and airport condition data on portable or panel-mounted displays. The prototype hardware and software were developed by ViGYAN, Inc. of Hampton, Va., as the Pilot Weather Advisor (PWA). Development of the PWA into the WSI InFlight System was facilitated under the NASA Small Business Innovation Research (SBIR) program and advanced to production with the aid of **Glenn Lindamood** of GRC's Engineering Design and Analysis Division.

A new thermosetting polyimide resin, **DMBZ-15**, exhibits better wear resistance than state-of-the-art PMR-15 and enables the development of fiber-reinforced polymer matrix composites with capabilities for use at temperatures as high as 650 degrees Fahrenheit—an increase of more than 100 degrees Fahrenheit above PMR-15 composites. Potential applications for this new polyimide include aircraft engine components, space transportation airframe and propulsion systems, missiles, and bushings and bearings for non-aerospace applications. The new resin was jointly developed by GRC's **Dr. Kathy Chuang** and **Ray Vanucci** of the Polymers Branch, with Maverick Corporation of Blue Ash, Ohio.

A **fault-tolerant, high temperature, high load radial magnetic bearing** incorporates innovative features of modular C-core stator construction, optimized rotor/lamination assembly, and new coil winding and core manufacturing approaches. These features have resulted in the application for two patents, and the new bearing has produced a static 1000-pound force at 25,000 rpm or while operating fault-tolerant at 1000 degrees Fahrenheit. Development work for this bearing was funded by the Smart Efficient Component Project and the Turbine Base Combined Cycle Program. The award-winning bearing was developed by a team from GRC's Structures and Acoustics Division, including aerospace engineer Gerald Montague.

The **Hybrid Anti-Icing System** is the first new form of ice protection for aircraft in 40 years, and the first system certified by the FAA that incorporates an electro-mechanical deicer and uniquely combines electro-thermal anti-icing with electro-mechanical deicing to protect roughness-sensitive airfoils. The new system operates at 25 percent of the power of current systems while providing the same level of safety for operations in icing conditions. The hybrid system uses thermal anti-icing and mechanical deicing to keep wings and other lifting surfaces clear of ice, and is currently in production for Raytheon Aircraft's new Premier I business jet. GRC's **Dean Miller** and **Andy Reehorst** from the Icing Branch were collaborators on the system, which was manufactured by Cox & Company, New York, N.Y.

Information about GRC's Technology Transfer and Partnership Office is available at <http://technology.grc.nasa.gov>.

Lab in the Limelight *from page 1*

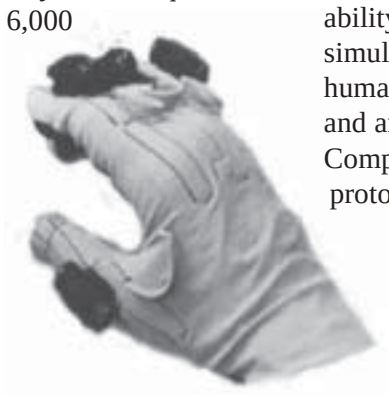
History

The Aviation Safety Research Act of 1988 mandated the FAA to focus a special emphasis on human factors in civil aviation. In response to this mandate, the FAA established the RDHFL at the Technical Center.

The RDHFL, which became operational on November 2, 1992, is a state-of-the-art complex where aviation-related human factors issues are studied in a controlled scientific environment.

Facilities

The human factors laboratory is a multipurpose facility staffed with highly experienced and skilled engineers, computer scientists, and psychologists. The laboratory encompasses approximately 10,000 square feet of laboratory space and 6,000 square feet of office space, including a briefing room. The laboratory space includes four experiment rooms that can be used separately or together. This unique testing facility is designed to be flexible and expandable. Most physical structures (e.g., movable walls), voice and electronic communications, computers, and system peripherals are modifiable and reconfigurable.

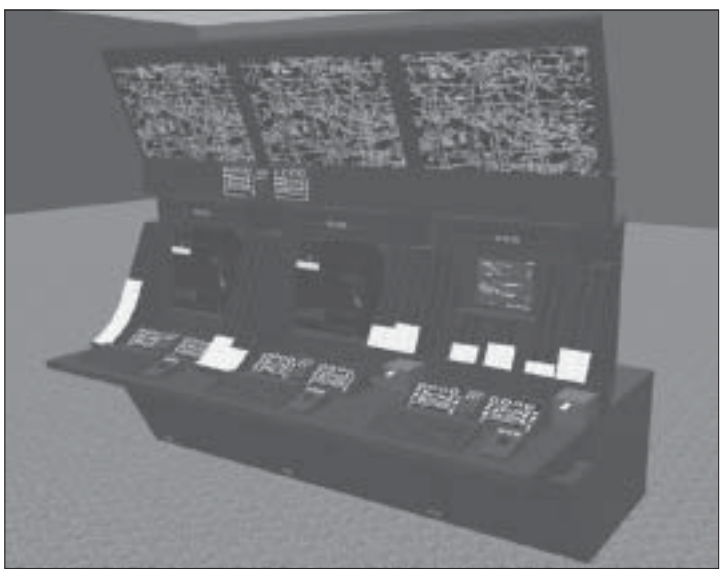


RDHFL's cyber glove system provides tactile feedback and high-accuracy joint measurements of the human hand that can be used to interact with virtual environments.

The laboratory also contains specialty areas. A black room with an audiometric booth provides scientists with the capability to conduct perceptual and display evaluation studies that require precisely controlled lighting and acoustic environments. A virtual reality laboratory allows users to dynamically interact with three-dimensional graphical representations of concepts, designs, and data sets that might otherwise be too complex to visualize. A general purpose engineering area provides specialized engineering and integration support for experiments and simulations. Experienced in-house engineers and scientists routinely develop customized hardware and software, and continually integrate new systems and capabilities into the facility. They have developed in-house simulation capabilities for both en route and terminal operations. The simulator can be reconfigured to reflect future features not available in current systems.

Research

The laboratory features three primary human factors research capabilities: computer-human-interface rapid prototyping; the ability to perform real-time simulations; and sophisticated human performance data collection and analysis capabilities. Computer-human-interface rapid prototyping is a cost-effective, iterative approach whereby a user interface can be developed quickly, then evaluated, modified, and reevaluated. The laboratory uses both commercially available and custom-built prototyping tools that can simulate the look and feel of an interface prior to actual software development.



Virtual reality techniques were used to design, visualize and evaluate proposed new designs of the next-generation air traffic control display consoles. During the evaluation process, a multidisciplinary team was able to navigate anywhere in the virtual air traffic control rooms to view the various consoles from any vantage point. Movable parts of the consoles were animated to illustrate some of the proposed features, such as tabletops lowering and raising, displays tilting back and forth, and printers sliding to different positions. This approach enabled end users and designers to quickly and inexpensively identify and correct design flaws early in the process.

Laboratory scientists have performed numerous experiments to study human factors issues affecting the performance of pilots, air traffic controllers, and airway facilities maintenance workforces. These experiments included field studies, laboratory experiments, and human-in-the-loop simulations. Additionally, engineering research psychologists at the laboratory performed usability analyses and developed system specifications, performance metrics, and design standards.

Recently, the RDHFL released "The Human Factors Design Standard," an important work in the field of human factors. It is a comprehensive compilation of human factors standards, principles, and guidelines integral to the procurement, design, development, and testing of FAA systems, facilities, and equipment. The standard also provides a single easy-to-use source of human factors design criteria oriented to the needs of the FAA mission and systems.

"Bravo for your excellent new Human Factors Design Standards document," said Dr. Ben Shneiderman, computer science professor and founding director (1983-2000) of the Human-Computer Interaction Laboratory at the University of Maryland at College Park. "I found your analysis thoughtful and more complete than other sources. I like your courageous statement of standards, rather than guidelines. Readability of the six level hierarchy is tough, but the tight organization makes this a valuable and different kind of document that complements other instructional materials."

More info: Visit the RDHFL web site at <http://rdhfl.tc.faa.gov/index.htm>.

Chavez Honored as Far West Rep of the Year

Vic Chavez of **Sandia National Laboratories** (SNL) in Albuquerque, N. M., has been named the 2003 FLC Far West Region's Outstanding Laboratory Representative.

The award honors "outstanding achievement" in technology transfer and development by an individual.

Chavez has been active in the FLC since the early 1990s. He has served in a variety of positions, including Mid-Continent Regional Deputy Coordinator and currently as Awards Committee Chair. Chavez is a talented negotiator and organizer.

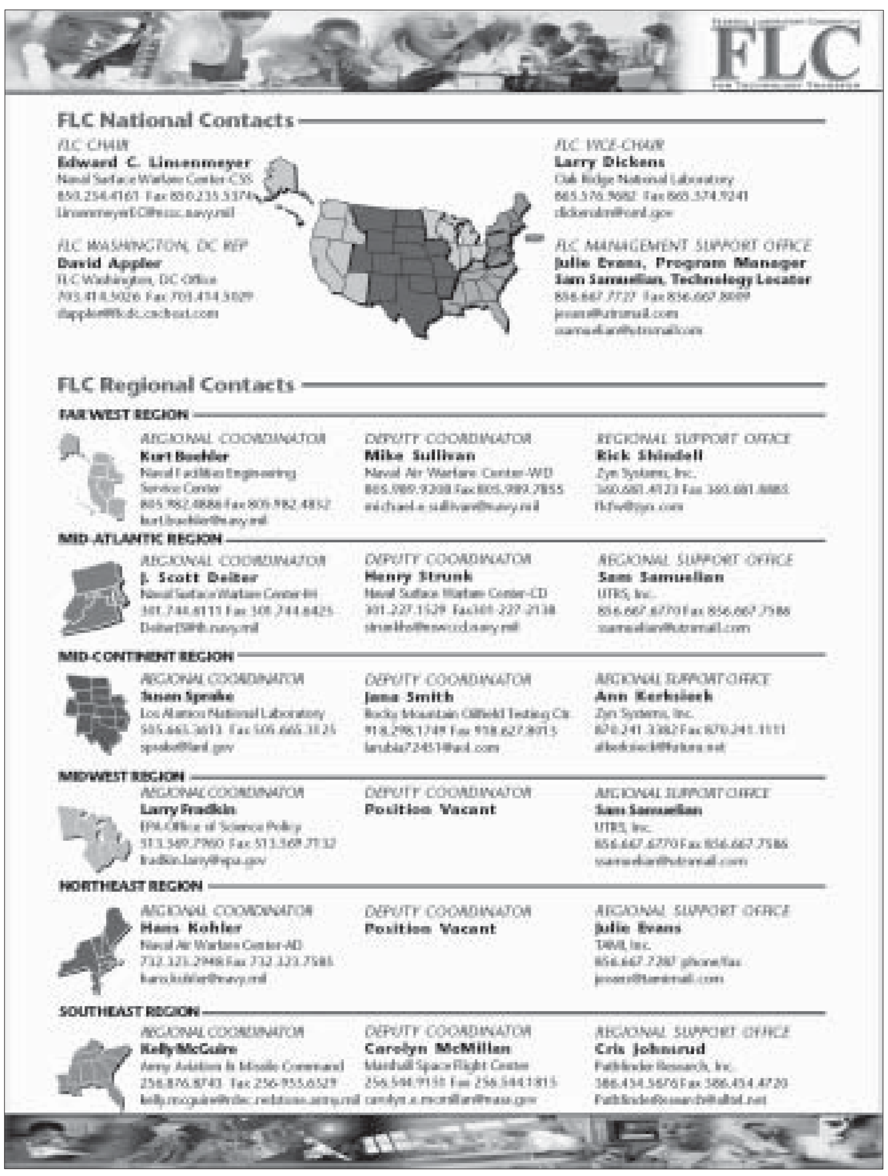
He has been successful in securing state funding that enables small businesses in New Mexico to acquire technical assistance from federal labs. He also established the first international fuel-cell consortium between Russia and the U.S. Chavez was instrumental in establishing the annual Iberoamerican Conference, a collaboration among Portugal, Spain, Central, South and North America.

Currently, Chavez is manager of the Small Business Initiative, New Ventures, Entrepreneurial, Regional Economic Development, Small Business Advocacy, and State of New Mexico Small Business Assistance Programs for SNL.


Vic Chavez

He is responsible for the development and implementation of a training program for aspiring entrepreneurs in which more than 100 individuals have developed spinoff companies, as well as implementing a complementary mentor-protégé program for small business suppliers and partners. Chavez has also been inventive in developing active CRADA and licensing programs.

FLC Points of Contact for Your T^2 Questions and Concerns



FLC

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MID-CONTINENT REGION

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Dc on T^2 *from page 1*

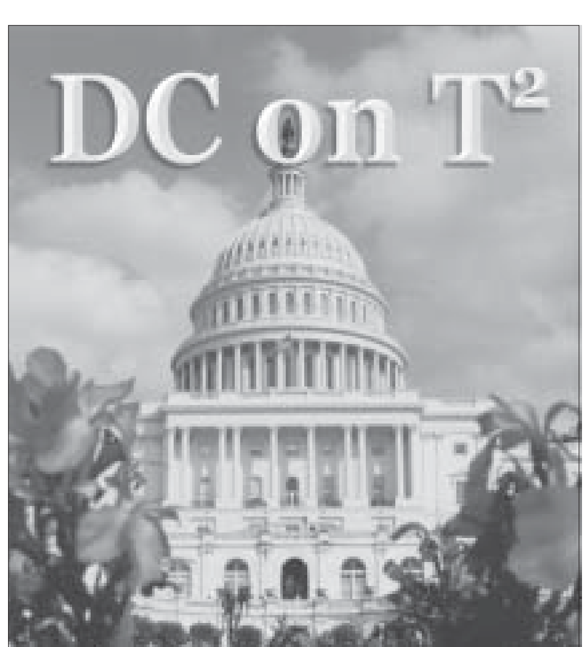
Examples include NIH, DOD, CDC, and Agriculture, among others. Some of the other bills continue to move through the Senate or House/ Senate Conference Committees.

As many of you know, Congress passed a continuing resolution to fund the rest of the government through October. While the appropriations continue to evolve, I'm starting to read that Congress may be contemplating an Omnibus Appropriation Bill for as many as 6 of the remaining 13 appropriation bills.

I guess the good news is that some agencies might not have to wait four or five months to get their total FY 2004 funding; but the bad news is the strange things that sneak in and out of an Omnibus bill that never appeared in the individual appropriations.

On the authorization front, Congress extended the current authorization for five months and the Transportation Equity Act for the 21st Century for six months, while it continues to negotiate new multi-year authorizations for these areas.

The DOD authorization continues to be in negotiations between the Congressional Conference Committee and the White House and Pentagon. Language dealing with Buy American Act provisions, pay and personnel reform, and BRAC 2005 appear to be areas of discussion, but no details are forthcoming. The



Omnibus Energy Bill continues to be politicized on several different fronts, so we wait to see if it will ever pass.

On some other items of note, there are two pieces on news from the Commerce Department. First, Commerce and the White House have announced their intention to create a new Assistant Secretary of Commerce for Manufacturing.

Secretary Evans has said he wants to see this person act as a "manufacturing czar" —who will "do anything and everything for manufacturing."

No details are available as yet.

On a different note, Bruce Mehlman, Assistant Secretary for Technology Policy, is about to leave Commerce. Some of you may recall Bruce as the FLC keynote speaker at Little Rock. He has been a strong technology transfer advocate.

Elsewhere, you might want to look at a House Bill, H.R. 3261, the Database and Collections of Information Misappropriation Act.

There is also some informative testimony on this bill by the president of the National Academy of Engineering on September 23, 2003, on the Academy web site.

Dave Appler is the eyes and ears of the FLC in the nation's capitol, keeping a a tab on the pulse of T^2 legislation and policy.

You can contact Dave with questions or concerns at<dappler@flcdc.cnchost.com> or 703-414-5026.

ETC...

Brookhaven *from page 1*

tools in the world to gain a better understanding of how to protect space travelers who venture beyond the protection of the Earth's atmosphere and geomagnetic field, shielded only by their spacecraft and spacesuits," said BNL's Chaudhari.

Within the NSRL target room, BNL researchers and other NASA-sponsored scientists irradiate a variety of biological specimens, tissues, and cells, as well as DNA, in solution. Other experimenters use industrial materials as samples, studying their suitability for spacesuits and spacecraft shielding.

In increasing knowledge of the effects of cosmic radiation, NSRL studies may expand the understanding of the link between ionizing radiation and aging or neuro-degeneration, as well as cancer. In aiming to limit the damage to healthy tissue by ionization, NSRL research may also lead to improvements in cancer radiation treatments.

More info: Visit the Brookhaven National Laboratory web site at <www.bnl.gov>.

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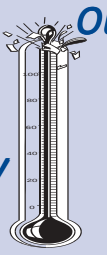

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