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# NEWSLINK

FEDERAL LABORATORY CONSORTIUM FOR TECHNOLOGY TRANSFER

MARCH 2002 VOL. 18, NO. 3

## Cost-Saving Roadway Simulator Identifies Vehicle Problems

Military vehicles can now reach speeds up to 120 mph—without going anywhere. Like a large treadmill, a new simulator at the U.S. Army Aberdeen Proving Ground Aberdeen Test Center (ATC) moves a roadway beneath a motionless truck.

A larger, much more advanced vehicle-in-the-loop simulator technology than its Italian Fiat predecessor—or any U.S. auto industry test equipment—the roadway simulator will be used to test the safety and performance of wheeled vehicles in a laboratory environment. Truck prototypes that are not yet roadworthy can be tested. And the benefits pay off well, with greater engineering precision, repeatability and safety in the long run.

“The greatest advantage is its cost savings—helping identify problems with trucks early in the development,” said **Greg Schultz**, ATC senior engineer and roadway simulator project manager. “Then we can fix any problem early in the design before mass production, so it doesn’t get produced in large quantities, and have to be fixed later.”

### Testing, Testing

A three-phase project begun in 1997, the roadway simulator was designed, assembled and tested at **MTS Corporation** near Minneapolis. Soon the parts will be shipped and

reassembled in the ATC’s new 84 ft. x 160 ft. laboratory. The entire simulator should be set up by October 2002; Phase



The new roadway simulator at the Aberdeen Test Center.

I will be completed by the end of 2002; and the equipment should be fully functional by July 2003. Schultz is now working with controls and systems engineers to develop applications software.

“Satisfying Newton’s laws of motion,” the vehicle simulator rests on an inertial mass of five million pounds of concrete and steel, more than 1,500 cubic yards. The 12-ft.-deep test pit contains all simulator components, so it looks as if the truck is standing at floor level. With broad scaling capabilities, the testing can be done on wheeled, two- or three-axle vehicles and five-axle tractor-trailer combinations,

Please see **ATC**, p. 7

## Small Tech Businesses Succeed with FAA

Working closely with the Department of Transportation’s Federal Aviation Administration, Volpe National Transportation Systems Center’s Small Business Innovation Research (SBIR) Program solicits proposals each year to fill the FAA’s current “wish list.” And small businesses often provide the kind of innovative technology required.

Responding to the need for a technology that could locate smaller defects in aircraft, in the mid-’90s **Jentek Sensors, Inc.**, a company of 15 employees in Waltham, Mass., came in with just such an idea. Jentek’s meandering winding magnetometer (MWM), a surface-mountable advanced electromagnetic technology that can go deeper into a structure than conventional methods, is sensitive to small changes of conductivity in metal and capable of detecting tiny flaws or cracks. Beginning with an SBIR Phase I proposal, Jentek got its foot in the FAA door by focusing on engine application. Since then, a larger Jentek now has a contract to apply a similar technology to airframe problems.

### PRI’s MOI

Another small business, **Physical Research Inc. (PRI)** of Torrance, Calif., successfully improved its technology through the FAA’s SBIR program.

Please see **PRI**, p. 3



## FED LABS FLASH

*Technology transfer news, notes, and events  
within the federal lab community*

### **"Shoe-icide" Bomber's Shoes Disabled by Sandia Bomb Squad Tool**

The shoe bombs Richard Reid allegedly tried to detonate onboard a trans-Atlantic flight from Paris to Miami were surgically disabled by bomb specialists using an advanced tool originally developed at Sandia National Laboratories (SNL). Members of the Massachusetts State Police bomb squad and the FBI disabled the shoe bombs using a percussion-actuated nonelectric (PAN) disrupter.

Although specific details about how the PAN disrupter works cannot be divulged for security reasons, the device precisely interrupts a bomb's internal gadgetry quickly—before the bomb can detonate—and remotely—with human bomb specialists a safe distance away. "This is another example of our national labs' technological wizardry being put to good use to support America's security," said Energy Secretary Spencer Abraham.

Reid's shoe bombs were disarmed and their inner workings revealed without detonating them so the FBI could use the deactivated bombs during its criminal investigation.

**For more info:** John German, 505-844-5199, [jdgerma@sandia.gov](mailto:jdgerma@sandia.gov)

### **NASA's Spinoff Offers Down-to-Earth Space Technology Products**

The latest NASA agency innovations are now featured in the 2001 issue of *Spinoff*. A new video enhancement tool and a noninvasive heart monitor are just a couple of the agency's nearly 50 commercialized products featured. The latest products are described in the areas of health and medicine, transportation, public safety, computer technology, manufacturing technology, consumer/home/recreation, and environment and resources management.

*Spinoff* also revisits past innovations in a special millennium feature section. Since 1976, *Spinoff* has showcased more than 1,300 public benefits of NASA's commercial partnerships with private industry. The publication also covers the agency's R&D activities and serves

as a reference resource to NASA's commercial technology network.

To obtain a print copy of *Spinoff*, contact the National Technology Transfer Center, 800-678-6882; further questions may be addressed to the editors at [spinoff@sti.nasa.gov](mailto:spinoff@sti.nasa.gov).

**For more info:** [www.sti.nasa.gov/tto/](http://www.sti.nasa.gov/tto/)

### **NASA Blueprint Addresses Aviation Issues**

NASA's Office of Aerospace Technology released an integrated strategy, or blueprint, to address solutions to critical issues in aeronautics by developing new technology—for a bold new era of aviation. The blueprint identifies four elements on which NASA will focus: the digital airspace, revolutionary vehicles, security and safety, and a state-of-the-art, educated workforce.

"The aeronautics blueprint identifies a new and revolutionary technology vision," said NASA Administrator Sean O'Keefe. "Working in partnership with the Federal Aviation Administration, the Department of Defense and industry, this blueprint will transform NASA and create the excitement necessary to inspire and develop an engineering workforce that will enable a new era in flight."

**For more info:** [www.aerospace.nasa.gov](http://www.aerospace.nasa.gov)

### **New Bulletins Track Environmental Issues**

A new monthly online bulletin, *Waste Management*, is now available from the Department of Energy's Remedial Action Program Information Center (RAPIC). Containing citations to technical documents on the management of radioactive and selected hazardous material, this bulletin (January 2002 issue) is available at [www.hsrdo.ornl.gov/rapic/7cabwm.html](http://www.hsrdo.ornl.gov/rapic/7cabwm.html).

RAPIC's other monthly bulletins include:

- *Decontamination/Decommissioning & Tank Remediation*, [www.hsrdo.ornl.gov/rapic/7cabdd.html](http://www.hsrdo.ornl.gov/rapic/7cabdd.html)
- *Soil and Groundwater Studies*, [www.hsrdo.ornl.gov/rapic/7cabsq.html](http://www.hsrdo.ornl.gov/rapic/7cabsq.html)

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## FLASH from p. 2

- *Site Remediation*, [www.hsrdo.ornl.gov/rapic/7cabsr.html](http://www.hsrdo.ornl.gov/rapic/7cabsr.html)
- *EM Program Management and Research*, [www.hsrdo.ornl.gov/rapic/7cabem.html](http://www.hsrdo.ornl.gov/rapic/7cabem.html).

For more info: Park T. Owen, [rapic@ornl.gov](mailto:rapic@ornl.gov), <http://www.em.doe.gov/rapic>

## DOE Grants for Oil Producers

More than half of America's oil production from the lower 48 states is supplied by small independent producers. As these companies become increasingly important to U.S. energy security, the Department of Energy provides grants for the smallest of these producers to test better technologies that can keep their wells pumping. Read about two projects proposed by Woolsey Petroleum Corp., Wichita, Kans., and Tenneco Energy, Wheat Ridge, Colo., at [www.fossil.energy.gov](http://www.fossil.energy.gov).

## Directory Available for Biotech Industry

As private funding for biotechnology gains momentum in 2002, a reliable, up-to-date resource to locate venture capital (VC) firms that specialize in the industry is important. The new directory, *The 2002 Biotechnology VC Directory* (produced by BioAbility, published by *BioWorld Today*) details U.S. VC firms that invest in biotechnology and the companies they

have invested in. There is a charge for the directory.

For more info: [www.ahcpub.com/56641.html](http://www.ahcpub.com/56641.html)

## ARS Makes Pest Management Resources Available on Multimedia

The Agricultural Research Service (ARS) has made a CD-ROM and web site available to provide land managers with the best pest management resources. A collaborative effort among the ARS, the USDA's Animal and Plant Health Inspection Service and the University of Wyoming, the grasshopper project was coordinated by the ARS Northern Plains Agricultural Research Laboratory in Montana. The web site and CD-ROM are comprehensive sources for the most recent research in grasshopper management, identification, biology, ecology and control tactics for federal, state and local land managers, weed and pest districts, extension agents and ranchers. Decision-making software can also help land managers decide if and when pesticide spraying will make economic and environmental sense. While the information and software are specific to U.S. conditions, many countries use it as a model for developing their own programs.

To obtain the free CD-ROM, contact the Northern Plains Agricultural Research Laboratory, 406-433-5038, [hoppercd@sidney.ars.usda.gov](mailto:hoppercd@sidney.ars.usda.gov), [www.sidney.ars.usda.gov/grasshopper/index.htm](http://www.sidney.ars.usda.gov/grasshopper/index.htm) **NL**

## PRI from p. 1

Dating from 1990, PRI's Magneto-Optic Imager (MOI), also an electromagnetic technique, uses a garnet crystal that allows visualization of the electromagnetic field inside the part being inspected, e.g., the fuselage. As technicians scan the sensor over the aircraft, they can see onscreen how the electromagnetic field interacts around the metal fasteners, and they see cracks as well.

As part of the National Aging Aircraft Research Program, inspection prototypes are tested at a facility in Albuquerque, run by

Sandia National Labs for the FAA—the FAA's Airworthiness Assurance Nondestructive Inspection Validation Center.

Today, many commercial airlines, repair shops and the military (e.g., USAF) employ PRI's MOI and/or Jentek's MWM in their inspection or maintenance procedures.

For more info: Jentek Sensors, Inc., [jentek@shore.net](mailto:jentek@shore.net); Physical Research, Inc., [www.primd.com](http://www.primd.com); Dave Galella, 609-485-5784, [david.galella@tc.faa.gov](mailto:david.galella@tc.faa.gov); FAA Airworthiness Assurance NDI Validation Center, [www.sandia.gov/aanc/AANC.htm](http://www.sandia.gov/aanc/AANC.htm) **NL**





## TECHNOLOGY WATCH

*Federal laboratory technologies available for technology transfer*



### AGRICULTURE

#### **Portable Rainfall Simulators Fight Runoff**

Last summer, 40 teams of scientists across the country used portable rainfall simulators (PRS) to help standardize their collection of soil and runoff data in agricultural watershed regions.

The project's main objectives included determining how much phosphorus soil can retain before losing the nutrient to runoff, creating a reliable indexing system to assess and rank a farm site's vulnerability to phosphorus runoff, and devising new guidelines by which farmers can maximize their crop yields using manure and fertilizer while minimizing runoff.

Driving the effort is concern over phosphorus enrichment of fresh water, which can speed eutrophication, a natural aging process. One manifestation is the growth of aquatic weeds and blue-green algae that can clog filters, crowd out beneficial plants, and deprive aquatic life of oxygen.

At field sites, scientists can simulate how it all begins on 20-square-foot plots by starting a gas-powered pump that forces water through the simulators' plumbing systems and into nozzles that convert it to "rain." The plots are showered at a thunderstormlike rate of nearly three inches per hour. Once puddling and runoff occur, metal borders downstream collect the water and direct it to gutters that empty into plastic bottles for weighing and analysis.

Until recently, such research has primarily been confined to the laboratory and carried out by scientists using different methods. With rainfall simulators, it's now possible to coordinate such efforts and generate results for easier comparison.

**For more info:** Andrew Sharpley, 814-863-0948, ans3@psu.edu; [www.ars.usda.gov/AR/archive/oct01/rain1001.htm](http://www.ars.usda.gov/AR/archive/oct01/rain1001.htm)



### SENSORS

#### **Device Senses Kids in Car Seats**

NASA Langley Research Center has developed a safety device to alert parents who inadvertently leave their children strapped in car seats.

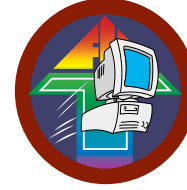
Every year, infants and small children die needlessly because they have been left in vehicles, according to Kids 'N Cars, a national non-profit safety organization. Inspired by aircraft flight-test

technology, the Child Presence Sensor uses precision materials and electronics to sense when a child is seated in a car infant or booster seat after the driver has left the vehicle.

This sensor driver alarm, designed to hang on the driver's key ring, sounds ten warning beeps if the driver moves too far away from the vehicle. If the driver doesn't return in one minute, the alarm will beep until it's reset by returning to the child safety seat. The sensor switch triggers immediately when a child is placed in the seat and deactivates when the child is removed.

The switch has a large activation area with a sensitivity of about eight ounces. The sensor detects weight once the child is placed in the seat and transmits a unique code to the driver-alarm module via a radio-frequency link. The system incorporates a long-life battery for reliability.

**For more info:** Brian Beaton, 757-864-7210, b.f.beaton@larc.nasa.gov



### COMPUTERS

#### **Virtual Cancer Test Eases Patient's Patience**

Colorectal cancer is the second leading cause of cancer-related death in America. Colonoscopies help to detect pre-cancerous conditions, but the general public is fearful and reluctant to get screened. A noninvasive alternative has arrived.

Dr. Arie Kaufman of the State University of New York (SUNY) - Stony Brook Computer Science Department, with support and funding from the Office of Naval Research (ONR), has developed the Virtual Colonoscopy, an accurate, fast, patient-comfortable procedure for screening of colon polyps—the precursor of cancer—without the need for sedation or the risk of puncturing the colon.

Kaufman uses algorithms to render the virtual colon and visualize it interactively in real time. After a 40-second single-breath-hold computed tomography (CT) scan of the patient's abdomen is taken, volume visualization is used to virtually navigate within an automatically segmented and reconstructed 3D model of the colon. The PC-run visualization software, which allows physicians to interactively navigate the virtual colon, also includes customized tools to conduct "virtual biopsies" to inspect suspicious regions.

Clinical studies demonstrate the effectiveness of the Virtual Colonoscopy in imaging and detecting polyps as small as 3 mm in diameter. The current procedure is being extended to interactive 3D virtual endoscopy for visualizing the interior of other organs, such as the heart, arteries, lungs, and stomach.

**For more info:** Gail Cleere, 703-696-4987, cleereg@onr.navy.mil, [www.cs.sunysb.edu/~vislab/animations/colonoscopy/](http://www.cs.sunysb.edu/~vislab/animations/colonoscopy/)



### BIOTECHNOLOGY

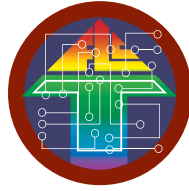
## New Treatment for Uterine Bleeding Created

Abnormal uterine bleeding, defined as bleeding other than the regular monthly menstrual periods of nonpregnant women, is a common, troublesome ailment. Treatments for this condition include a thermal balloon procedure suitable only for a limited number of patients, hormone therapy, or hysterectomy. A new procedure, based in part on **National Institute of Standards and Technology (NIST)** research, in which the abnormal bleeding is curtailed by freezing problem tissue, was recently approved for use by the **Food and Drug Administration**.

The new procedure, which can be done on an outpatient basis, resulted from a Cooperative Research and Development Agreement between NIST and **CryoGen, Inc.**, a San Diego-based medical device company.

NIST scientist **Ray Radebaugh**, along with colleagues **Eric Marquardt** and **Marcia Huber**, designed a catheter that can reach temperatures of minus 150 degrees Celsius (minus 238 degrees Fahrenheit) and minus 190 degrees Celsius (minus 310 degrees Fahrenheit) at the tip. The technology originally was created to freeze abnormal heart tissue and prevent arrhythmias (irregular heartbeats).

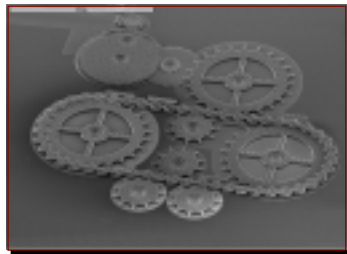
The cryogenic probe is inserted via the cervix into the uterus where one side receives a four-minute freeze and the other side a six-minute freeze. Ultrasound helps the technician place the probe for a good result. According to a review in *Family Practice News*, the treatment was successful in clinical trials, with patients typically discharged 30 minutes after the procedure and with nearly all returning to work the following day.



### ELECTRONICS

## Mini-Microchain Developed at Sandia

A microchain that closely resembles a bicycle chain—except that each link could rest comfortably atop a human hair—has been fabricated at the **Department of Energy's Sandia National Laboratories**. Because a single microchain could rotate many drive shafts, the device would make it unnecessary to place multiple tiny



A microscopic view of Sandia's microchain.

microelectromechanical (MEMS) motors in close proximity. Usually, a separate driver powers each MEMS device.

The microchain also makes it possible to drive a MEMS device from a motor situated at a distance, again saving considerable space on the MEMS-bearing chip. The microchain could be used to power microcamera shutters, as larger chains currently do in the macroworld. It could also be used in mechanical timing and decoding.

A microchain rather than a microbelt was fabricated because, although silicon belts are tough and flexible, they are spring-like and produce too much torque on gears not aligned in a straight line. Each chain link, on the other hand, is capable of plus-or-minus 52 degrees rotation with respect to the preceding link, without creating pressure on the support structure. The wide angle means MEMS designers can be relatively unconstrained in positioning multiple devices. The longest span unsupported by gears or bracing is 500 microns. A microchain tensioner is needed to accommodate longer spans.

**For more info:** Ed Vernon, 505-845-3075, [geverno@sandia.gov](mailto:geverno@sandia.gov)



### LAW ENFORCEMENT

## Detection Technique Helps Police ID Shooters at Crime Scene

The first 72 hours are the most critical for the successful investigation of a crime. Thus, explosives experts at the **U.S. Department of Energy's Sandia National Laboratories**, working with **Law Enforcement Technologies, Inc. (LET)** of Colorado Springs, Colo., have devised a technique to help police officers at a crime scene quickly narrow the list of suspects in a shooting to those who have recently fired a gun.

When a gun is fired, the shooter gets sprayed with an invisible blast of chemical residues that are byproducts of the incomplete combustion of gunpowder, primer, and lubricants. The Sandia-LET gunshot residue detection technique identifies very small amounts of these chemical clues on a person's hands, arms, or clothing. A police officer could swab someone at the crime scene and have a reading in seconds.

Each gunshot residue detection kit includes a round fiberglass swab that can be rubbed on the hands, arms, or clothing of someone suspected of firing a gun. The police officer places the dry swab into a small plastic cube and pushes a plunger button on the lid that breaks a vial inside the cube to release a clear liquid, which soaks the swab. If gun residue is present, spots where trace amounts of organic residues are present turn blue on the white swab in 40 to 60 seconds. In addition, the same swab used at the scene can be sent to a forensics lab for additional chemical analyses, the results of which could be used as evidence in court.

**For more info:** John German, 505-844-5199, [jdgerma@sandia.gov](mailto:jdgerma@sandia.gov); Bill Lockwood, 719-380-5557, [blockwood@lawenforcetech.com](mailto:blockwood@lawenforcetech.com)



## SPOTLIGHT ON SUCCESS

*Success stories from the federal lab community*

# Joint Sandia/Goodyear Computational Tools Yield Beneficial Industry Processes

The management of nuclear stockpiles could result in better tires faster, thanks to a unique partnership between Goodyear and the Department of Energy's (DOE) Sandia National Laboratories (SNL).

A common bond in computational mechanics has created a teaming effort between Goodyear and SNL to replace the tire company's traditional build-and-test design method with reliable computational mechanics simulation tools. This collaboration—via a Cooperative Research and Development Agreement (CRADA)—has provided Goodyear with modeling tools that are shortening production time, reducing costs, and allowing Goodyear to bring new products to market faster and employ new manufacturing techniques at several plants worldwide.

The nonlinear mechanics code that SNL developed for Goodyear allows its designers to run simulations in place of the costly build-and-test method of tire design. A complex simulation of tire performance produces a "footprint" of information similar to results from an actual prototype test—and the tire designers have models as reliable as the prototype tests.

The partnership with Goodyear benefits both SNL and the National Nuclear Security Administration (NNSA), allowing the use of computational models over broad engineering conditions, and helping in more accurate and improved code verification and model validation metrics over a broad range of physics, including use in nuclear

weapons. Using Goodyear as a "test track" will save taxpayers money in validation and allow the evaluation of different ways to achieve the next generation of computational engineering design in the industrial arena and within SNL.

SNL's DOE defense programs are using the tools to simulate the production of neutron generators and other nuclear weapons applications, thereby reducing portions of a neutron generator encapsulation schedule by a factor of two. Neutron generators are critical components of nuclear weapons.

A new five-year CRADA to streamline the joint R&D work has just been signed—the seventh Goodyear/SNL CRADA since 1992. Two initial tasks will concern information management and the current work in chemical research.

Negotiated between SNL and Goodyear's chemical business, the "chemical" CRADA will explore new and more energy-efficient processes that could dramatically reduce U.S. petrochemical industry dependence on foreign oil. This sharing of expertise will enable the analysis of chemical process technologies that may reduce energy consumption, waste generation, and environmental emissions.

**For more info:** Chris Burroughs (Sandia Media Relations), 505-844-0948, [coburro@sandia.gov](mailto:coburro@sandia.gov), [www.sandia.gov/media/NewsRel/NR2002/goodye.htm](http://www.sandia.gov/media/NewsRel/NR2002/goodye.htm); [www.goodyear.com](http://www.goodyear.com). **NL**



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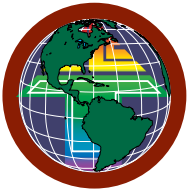
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## ENVIRONMENT

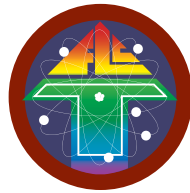
## New Pollution Treatment Cleans Up

Innovative use of a carbon fiber material allows hazardous air pollutants (HAPs) to be collected and siphoned off for reuse. The **Construction Engineering Research Laboratory (CERL)**, in partnership with the **University of Illinois** and the **U.S. Air Force**, has developed a cartridge-like device that captures HAPs and volatile organic compounds (VOCs) exhausted from operations such as painting and chemical cleaning. These materials can then be recycled for uses such as paint thinning.

Representing a breakthrough in pollution treatment technology, CERL's device uses a woven, pure carbon fiber cloth that is rolled up into cylinders and set in a metal vessel. When HAPs-contaminated air is pulled through the vessel, the substance adheres to the carbon fibers until the adsorbent is saturated. Then, an electric current passes through the cylinders and the captured material desorbs from the fabric, condensing onto the chamber walls, which have remained cool throughout the process. Because the system eliminates additional steps by collecting and desorbing the HAPs in the same vessel, it is expected to save between 20% to 50% over conventional treatments while enabling production plants to comply with the Clean Air Act and avoid fines. This new carbon fiber fabric system will also be more cost-effective because the substrate will not have to be replaced as often.

The research team developed the technology for U.S. military operations at installations and munition plants, where many activities release VOCs and other HAPs, including equipment cleaning with chemicals and painting weapons and tactical vehicles. The woven, activated carbon material in the new system originally was designed for electronic and fire prevention applications.

**For more info:** Dr. James Hay, 217-373-3485, Kent.J.Hay@erdc.usace.army.mil



## ENERGY

## Insulation the Key to Fuel Efficiency

Advanced lightweight insulation and window technologies can contribute significantly to achieving industry and government goals of substantially improving fuel economy without loss of vehicle performance or passenger comfort.

On a hot summer day, the interior air temperature of a car parked in the sun can exceed 150°F (66°C); interior surface temperatures can reach 200°F (93°C). The problem of creating a



A 1999 Ford Taurus was retrofitted with LBNL's gas-filled-panel insulation and specially designed double-pane windows.

comfortable thermal environment without adding excessive weight, space, or power requirements to the vehicle can be solved through aggressive thermal-management strategies using advanced window and insulation technologies.

**Lawrence Berkeley National Laboratory's (LBNL)** patented gas-filled-panel insulation uses thin polymer films and low-conductivity gases to build an opaque device with exceptional thermal resistance. Solar-control coatings for window glass create a narrow-band-pass filter that rejects ultraviolet and infrared wavelengths.

The reductions in cooling and heating loads that can be achieved by thermal management not only result in reduced accessory use, but also allow heating, ventilating, and air-conditioning equipment to be downsized, reducing the weight of the vehicle and conserving space in the engine compartment.

**For more info:** Deborah Hopkins, DLHopkins@lbl.gov **NL**

## ATC from p. 1

from a truck to an offroad forklift to a bomb loading platform. "Eventually we will be able to put on an entire tractor trailer and drive it in the lab," Schultz said. The simulator tests for speed, rollover stability, steering and braking performance, ride quality, tire mechanics and a number of other safety/performance standards on a broad range of terrain types.

### Lighter, Faster Force

Because the **U.S. Tank-Automotive and Armaments Command (TACOM)** in Warren, Mich., is a big supporter of the roadway simulator project, some of the first trucks tested will be TACOM's family of medium tactical vehicles (FMTV). Part of the Army's transformation to a lighter, faster force, the FMTVs are expected to be the "workhorse for the Army" for the next 30 years. Replacing the 2 ½- to 5-ton trucks of the last 40 years, these vehicles will be easier to transport.

Beyond work with TACOM, Schultz hopes to work with the **Department of Transportation** and is interested in a tie-in with an academic partner as endorsement. The ATC facility will be available to commercial companies—e.g., auto suppliers—for testing. "We hope to get involved with the commercial sector and use it for both the military and private industry in addressing their engineering problems," Schultz said.

### Meeting Safety/Performance Regulations

As technical lead, Schultz credits his co-manager, **Minh Vuong**, PM Instrumentation, Targets and Threat Simulators (PM ITTS), U.S. Army STRICOM, Orlando, Fla., for his funding and programming assistance in the project. The Roadway Simulator Project was funded through the **Office of the Secretary of Defense**, as part of the Central Test and Evaluation Investment Program (CTEIP).

All military equipment is tested at ATC to ensure that it meets performance and safety regulations. "Our job is to provide recommendations for safety to the Army on whether the material should be released to the soldiers," Schultz said.

**For more info:** Greg Schultz, 410-278-3510, gschultz@atc.army.mil **NL**



## COMING ATTRACTIONS

**April 3-4, 2002** ★  
**TechTrends 2002**  
Baltimore, MD

This conference offers an opportunity for technology, R&D and science organizations to gain insight into the newest funding initiatives offered by government agencies; to form strategic partnerships; and to learn about cutting-edge technologies through workshop presentations and keynote speakers.

<http://www.techrends.org/>

**April 9-10, 2002**  
**2002 MIT Research Directors Conference**  
Cambridge, MA

The MIT Research Directors Conference is a special, dynamic annual event which allows senior managers from industry worldwide to share the results of innovative new research being conducted in departments, laboratories and major research centers across the MIT campus.

**Diane Kendell, 781-239-1111,**  
[www.ilp.execseminars.com](http://www.ilp.execseminars.com)

**May 6-10, 2002** ★  
**FLC 2002 National Meeting**  
Little Rock, AR

With a theme of "Moving Forward with the FLC," this should be the biggest and best meeting yet! Basic and advanced training is offered, focusing on tech transfer processes and offering new ways of conducting tech transfer. Includes the 2002 FLC Awards for Excellence in Technology Transfer, a formal event.

**Sherry Nacci, 856-667-7727,**  
[www.federallabs.org](http://www.federallabs.org); [snacci@utrsmail.com](mailto:snacci@utrsmail.com)

**May 15-18, 2002**  
**INPEX Invention/New Product Exposition**  
Pittsburgh, PA

INPEX®/The Invention Show is the world's largest invention show featuring new products and innovations available to business and industry. INPEX® brings business and industry together with inventors and entrepreneurs from around the world.

**Jennifer Mullen, 412-288-1343,**  
[www.inventionshow.com](http://www.inventionshow.com)

**June 2-5, 2002**  
**Energy 2002**  
Palm Springs, CA

This workshop is sponsored by the U.S. Department of Energy's Federal Energy Management Program and cosponsored by the U.S. Department of Defense and the U.S. General Services Administration.

[www.energy2002.ee.doe.gov/](http://www.energy2002.ee.doe.gov/)

**October 15-18, 2002**  
**Americas Nuclear Energy Symposium (ANES)**  
Miami, FL

ANES 2002 will provide a forum for a hemispheric discussion and exchange focused on issues relating to the future of nuclear energy in the Americas. The program will deliver interactive discussions, workshops, case studies, industry updates, and an exposition by leaders in the nuclear industry.

**anes2002@hcet.fiu.edu,**  
[www.anes2002.org](http://www.anes2002.org), 305-348-5016