

# TEXAS Innovator

SUMMER 2008

TODAY'S IDEAS FOR TOMORROW'S TEXAS

*The major difference between the big shot and the little shot is the big shot is just a little shot who kept on shooting.*

— Zig Ziglar

## ENERGY/UTILITIES

### Let their light shine

The Texas State Energy Conservation Office (SECO) is piloting a solution for colonia residents who do not have



SECO brings electricity to La Presa residents.

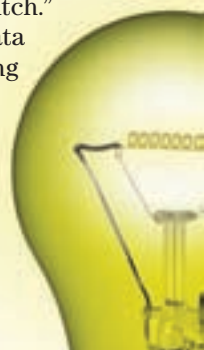
access to the utility grid. The colonias are patches of improvised, do-it-yourself homes along the Texas-Mexico border with little or no basic infrastructure for utilities. They are occupied

lighting for 12 homes at La Presa, near Laredo. The system is environmentally efficient, operating on biofuels, wind and solar power.

"The micro-grid is a bridge technology, providing power to colonia residents until they can access electricity from the power grid," says Dub Taylor, director of SECO. "This is a cleaner and more cost-effective alternative to using portable generators, and it provides basic electric service we all take for granted whenever we flip a switch."

SECO officials will collect data to determine specifics regarding the feasibility and economics of the system and how it could be used in other remote areas, including disaster relief sites.

For more information, contact Dub Taylor, [dub.taylor@cpa.state.tx.us](mailto:dub.taylor@cpa.state.tx.us), (512) 463-8352, or visit [www.seco.cpa.state.tx.us](http://www.seco.cpa.state.tx.us).



mostly by impoverished families.

In November 2007, SECO established a micro-grid consisting of a hybrid generator, energy storage, main distribution panel and temporary power outlet providing clean energy as well as safety

## NANOTECHNOLOGY

### Fighting cancer with a microscope

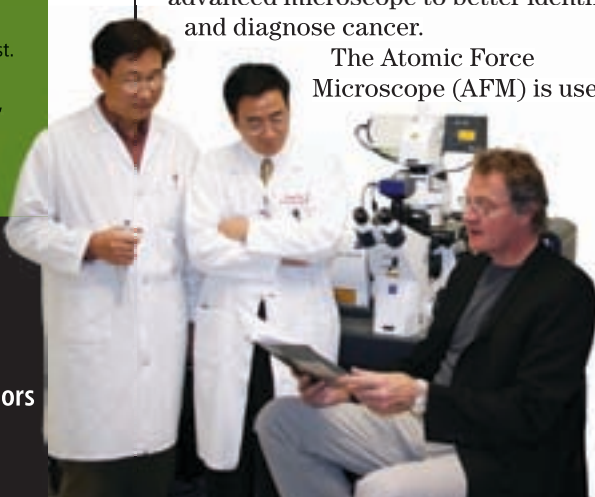
Scientists from the University of California at Los Angeles (UCLA) have discovered a way to use a highly advanced microscope to better identify and diagnose cancer.

The Atomic Force Microscope (AFM) is used

to examine and measure structures on scales of a fraction of a nanometer (one-billionth of a meter), through the use of a tiny probe that "feels" the material through direct contact. Under a conventional microscope, cancer cells are often hard to differentiate from healthy ones. Using the AFM, the UCLA team found that cancer cells offered less resistance to the probe — were softer, in other words — and thus were easily distinguishable.

Team members say the new technique may lead to ways to personalize cancer treatments based on the mechanical properties of malignant cells.

For more information, contact Jian Yu Rao, UCLA Jonsson Comprehensive Cancer Center, [jrao@mednet.ucla.edu](mailto:jrao@mednet.ucla.edu), or visit [www.cancer.ucla.edu](http://www.cancer.ucla.edu).



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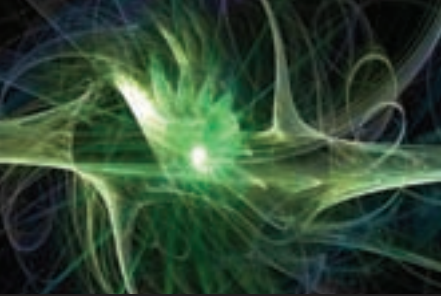
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## A Message from Comptroller Susan Combs

*Innovation is alive across Texas. Near Laredo, for instance, a Texas State Energy Conservation Office project is providing electricity for the first time to some colonia residents along the Texas-Mexico border. The innovative pilot project uses a rechargeable micro-grid to provide basic electricity and safety lighting. And that's just one example of the great work Texans are doing across our state. From pioneers in LASIK surgery to new lifesaving safety measures for our nation's soldiers and law enforcement, the award-winning Texas Innovator brings you the best of Texas. And our Web-exclusive content features stories of new hope for back-pain sufferers, along with efforts to help patients control prosthetic limbs with their minds. Find them all online at [www.texasinnovator.org](http://www.texasinnovator.org). Their stories will inspire the innovator in you, and we invite you to share your thoughts with us at [txinnov@cpa.state.tx.us](mailto:txinnov@cpa.state.tx.us).*

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DEFENSE INDUSTRIES

## Sewn-in security

Every second counts when U.S. soldiers or law enforcement officers are injured. Dr. Keith Rose, a Texan and former U.S. Army surgeon, designed the Integrated Tourniquet System (ITS) to assist medics and soldiers in the event of a severe extremity injury. ITS pants contain four tourniquets sewn into the fabric, easily activated by the wearer, a colleague or medical personnel.

"Extremity bleeding is the number one cause of death on the battlefield, and 60 percent of military injuries happen to the extremities," says Terry Naughton, director of licensed products for Virginia-based BLACKHAWK!, which manufactures ITS products.

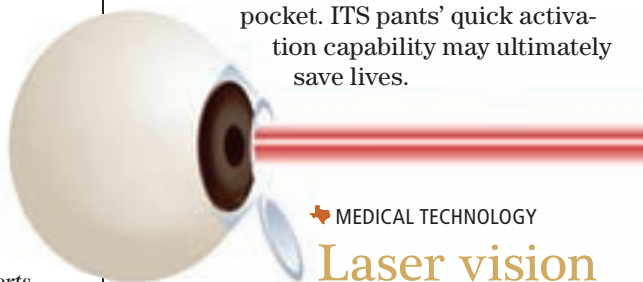
Soldiers already carry tourniquets, but often in a separate backpack or in a pocket. ITS pants' quick activation capability may ultimately save lives.



"If you can get to a medical facility within 20 minutes, you have a greater than 95 percent chance of survival," Naughton says. "This could give them that lifesaving edge."

ITS pants are already available for police units and civilian contractors working in Iraq, and BLACKHAWK! is working on ITS-integrated uniforms for all U.S. military branches.

For more information, contact Terry Naughton, [tnaughton@blackhawk.com](mailto:tnaughton@blackhawk.com), (920) 915-1114, or visit [www.blackhawk.com](http://www.blackhawk.com).



MEDICAL TECHNOLOGY

## Laser vision

A Texas doctor is the first U.S. ophthalmologist in private practice to offer a LASIK — laser-assisted in situ keratomileusis — procedure employing a new surgical laser system. The new procedure results in less discomfort for the patient and faster visual recovery, according to Dr. Phillips Kirk Labor, founder of Grapevine-based Eye Consultants of Texas.

Labor uses the FEMTO LDV™ surgical laser and GALILEI™ corneal mapping system (Ziemer USA Inc.) in an optimized LASIK procedure termed Z-LASIK.

The Texas firm will serve as a training ground for other ophthalmologists learning to use the equipment. About 1.5 million LASIK surgeries are performed in the United States annually.

For more information, visit the Eye Consultants of Texas Web site at [www.eyectexas.com](http://www.eyectexas.com) or call (817) 410-2030.

TRAVEL AND TOURISM

## In the headlights

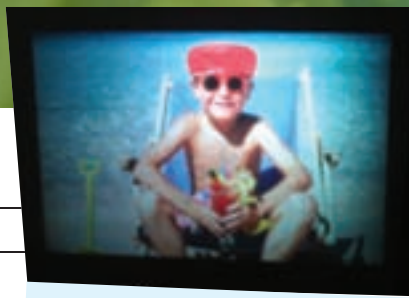
Minnesota is working to curb deer-related vehicle crashes with sign-mounted lasers that activate flashing lights when deer are present. The Minnesota Department of Transportation conducted a 10-month study on a mile-long stretch of highway. The result: a 50 percent reduction in deer-vehicle collisions, says Robert Weinholzer, the program's administrator.

With Texas having the largest white-tailed deer population in the United States, the Texas Department of Transportation plans to initiate similar programs in the future.

State Farm Insurance Co. estimates that 30,000 such collisions occur annually on Texas roads, with damages exceeding \$50 million.

For more information, contact Robert Weinholzer, (651) 234-7059.





#### EMERGING TECHNOLOGY

## Photo show on the go

Texas Instruments (TI) has unveiled a prototype of its Pico projector, a miniature projection device small enough to fit in a cell phone and powerful enough to project an image onto a wall or screen. The diminutive device is based on TI's Digital Light Processing (DLP) technology.

At the heart of the mini-projector is TI's Digital Micromirror Device, a semiconductor-based chip containing an array of millions of tiny individual microscopic mirrors. Each micromirror measures less than one-fifth the width of a human hair and corresponds to one pixel in a projected image. The Pico projector is designed to offer consumers and business professionals the ability to make presentations on the go without having to lug heavy equipment.

The one-and-a-half-inch-wide projector can be sold as a standalone product or as an accessory in third-party cell phones, digital cameras and other portable products, says Kateri Gemperle, public relations manager for TI's DLP Products.

For more information, contact Kateri Gemperle, (214) 567-3617, or visit [www.ti.com](http://www.ti.com).



#### TELECOMMUNICATIONS

## Saving the lives of seniors

In March 2008, Travis County (Texas) unveiled Project Lifesaver — a program that helps locate Alzheimer's and dementia patients if they wander away from their caregivers.

"It's an added tool that gives [caregivers] an extra layer of security," says Andrea Buckley, Project Lifesaver coordinator.

In early April, 16 people were enrolled in the free program. Participants wear a wristband similar to a watch that transmits a signal to special equipment used by law enforcement, which helps locate people who become lost.

Clients must be diagnosed with Alzheimer's or dementia and live with their full-time caregiver, who is required to check the batteries in the wristband

daily. Once a month, a Project Lifesaver representative visits the home to replace the battery and wristband.

The Travis County program is part of the seven-year-old Project Lifesaver International, which supports more than 630 agencies in 42 states and Canada. The program has a 100 percent success rate and has located more than 1,600 missing people.

For more information, contact Andrea Buckley, [andrea.buckley@co.travis.tx.us](mailto:andrea.buckley@co.travis.tx.us), (512) 854-7786, or visit [www.tcsheiff.org/projectlifesaver/index.html](http://www.tcsheiff.org/projectlifesaver/index.html).



## The In Crowd

*Innovations and innovators come in all forms. In each issue of Texas Innovator, The In Crowd will help bring you a little closer to some of Texas' brightest innovators, their perspective on why Texas is ideal for new approaches and even tips on fueling the creative mind inside us all.*

## Matt Winkler, Ph.D.

Asuragen Inc. – CEO



A key component to successful innovation is combining a sound business plan with ideas a little out of the ordinary. Many ideas

don't work, says Matt Winkler, chief executive officer of Austin-based Asuragen Inc., but the few that do help drive success.

"It's not single innovative flashes that lead to success, but rather creating an environment where innovation flourishes," says Winkler. "I try to hire scientists who have been innovative in the past and encourage people to try off-the-wall ideas."

Winkler's companies — Ambion, Asuragen and the recently formed Mirna Therapeutics — have produced a test that identifies which mutation a cystic fibrosis patient

has. Most recently, they produced the first validated micro ribonucleic acid test, which allows physicians to differentiate pancreatic cancer from chronic pancreatitis.

Winkler came to The University of Texas at Austin as a zoology professor from Cal-Berkeley. The comforts of being a tenured professor at UT made it difficult to leave and explore new territory with Ambion, but Winkler recognized that such exploration was the right path for him.

"Austin is a great place to create new companies," he says. "Its national reputation for being a vibrant city makes it easy to recruit talented people."

For more information, contact Asuragen at [contact@asuragen.com](mailto:contact@asuragen.com), (512) 681-5200, or visit [www.asuragen.com](http://www.asuragen.com).

Winkler talks about the foundation of great companies in an expanded interview online at [www.texasinnovator.org](http://www.texasinnovator.org).



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## A WORLD OF INNOVATION

### Sweden

More than 250,000 train commuters pass through Stockholm's main railway station each day. Karl Sundholm and his team have designed a system that will capture commuters' body heat and use it to heat a nearby 430,000 square-foot, 13-story office building.

In the plan, which is still in the drawing phase, this captured energy will heat water, which will be sent through pipes to the building and could provide as much as 15 percent of its heating needs.

*For more information, contact Karl Sundholm, [karl.sundholm@jernhusen.se](mailto:karl.sundholm@jernhusen.se), or visit [www.kungsbrohuset.se](http://www.kungsbrohuset.se).*

### New Zealand

New Zealand-based Orico Limited has discovered that a muscle-building test in livestock may actually work well in humans afflicted with muscular dystrophy, a group of more than 30 genetic diseases.

Lab tests on mice studied Duchenne muscular dystrophy (DMD), a debilitating muscle disease affecting about 3,500 male children in New Zealand. The muscle-building test results showed a strength increase in mice of up to 15 percent. Human trials could begin in about two years. As many as 600 boys are born annually with DMD in the United States.

*For more information, visit [www.orico.co.nz](http://www.orico.co.nz) or contact Monica Singh at [m.singh@orico.co.nz](mailto:m.singh@orico.co.nz).*

### Japan

A Japanese company has developed a humanoid robot that can help train future dentists by mumbling "ouch" when the drill hits a nerve.

Robot-maker Kokoro Company's medical simulation robot, Simroid, resembles a five-foot-three-inch young woman with long black hair. Simroid is designed for use in clinical training at dental schools.

The robot can also say "it hurts" and frown when it feels discomfort from the dental drill.

*For more information, visit [www.kokoro-dreams.co.jp/english](http://www.kokoro-dreams.co.jp/english).*

### United States

There is new hope for back-pain sufferers, and it's available right here in Texas...

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