

## The Latest In Homeland Defense & Security News

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### Highlight:

#### [Mechanical Trees Generate Power As They Sway In The Wind](#)

Researchers, studying the swaying of tall objects, are closer to turning the kinetic energy into electricity. Electromechanical materials have been developed that convert sporadic energy into electricity-producing structural vibrations.



### Alternative Energy

#### [DOE Funds 10 MW Biomass Project On Military Installation](#)

A 10 MW biomass steam turbine generator will be installed at the U.S. Marine Corps Installation Command in Albany, Georgia. The generator is expected to reduce annual electricity consumption by approximately 4,600 MWh annually.

#### [France Has Solar-Strip Paving Ambitions For Long Stretch Of Roads](#)

France plans to solarize a 621-mile stretch of roads with solar panels over the next five years by gluing 7 mm-thick strips of solar panels onto the surface of the roads.

#### [Scientists To Inject Fuel In Experimental Fusion Device](#)

Researchers are investigating various nuclear fusion devices as a potential energy source. Unlike nuclear fission, nuclear fusion waste is negligible.

### Biometrics

#### [New Forensics Research Center To Develop Tools To Improve Law Enforcement's Investigation Capabilities](#)

A new research center has been created to develop tools for digital forensic investigation, case management and evaluation, robotics for investigating crime scenes, and new tools and applications for rapid DNA tests, as well as improved facial recognition and fingernail biometrics. The research center is a collaboration between the University of New Haven's Henry C. Lee Institute of Forensic Science and Beijing's China University of Political Science and Law.

#### [Bulgaria To Introduce Biometric Identity Cards](#)

Bulgaria announced that it will introduce identity cards containing biometric data that will allow passage through eGates at EU airports. The new ID cards will also include an electronic identification option.

#### [Facial Recognition Check-In Being Tested At Beijing Railway Station](#)

The Beijing Railway Station is testing facial recognition technology to identify passengers. "Those passengers with a second-generation identification card and a blue magcard ticket can use the new automated biometric check-in feature. Passengers are required to remove masks, sunglasses and hats to have their face photos taken and identity verified."

### CBRN

#### [Killing Pathogens With A Fine, Salty Mist](#)

The Pacific Northwest National Laboratory (PNNL) has developed a microbial disinfecting system that can kill at least 99.9999 percent of health-harming microbes on surfaces and in the air.

#### [Leidos Eyes Active Infrared Spectroscopy Chemical Detection For Weapons, Poisons, Narcotics](#)

A portable, lightweight, battery-operated, chemical detection system that detects explosives, chemical weapons, poisonous chemicals, and narcotics using active infrared spectroscopy at 30 meters is being developed for the U.S. Air Force Research Laboratory.

#### [Nuclear Research Team Develops Methodology For Tracing Illegal Nuclear Material To Source](#)

"Researchers have developed a new method in nuclear forensics research to determine the reactor origins of weapons-grade plutonium. This methodology gives investigators and other government entities the ability to track the production source of black market nuclear materials, specifically plutonium."

#### [Sandia Recognized For Decontamination Technology Transfer](#)

Sandia Laboratory's decontamination product that neutralizes chemical and biological agents and was originally used by the military and first responders, has been licensed so that it can be used commercially.

### Critical Infrastructure

#### [De-Icing Concrete To Improve Roadway Safety](#)

A new concrete has been developed that conducts enough electricity to melt ice and snow in the worst winter storms while remaining safe to the touch, and also shields against electromagnetic waves.

#### [Sustainable Technique Recovers Gold From E-Waste Cheaply](#)

Instead of using pyrometallurgy or hydrometallurgy to extract gold from jewelry, computer chips, circuits, etc., researchers have developed a green method that is also less expensive.

#### [U.S. Must Address The "Wicked Problem" Of Wildfire](#)

In 2015, a record number of acres in the U.S. was burned by wildfires. Researchers have studied the problem and have suggested strategies for mitigating and adapting to it that include

identifying early warning signals and creating a centralized information system.

## Cultural

### [Do Gaza's Melting-Pot Markets Reflect Identity Crisis?](#)

Gaza's markets are a glimpse of its changing and diverse culture and commercial products. According to some experts, the current changes may not be permanent.

### [Women's Integration In The Marine Corps Will Only Succeed If Top Leaders Fully Commit](#)

According to a panel of experts advocating for integration, "unless leadership in those resistant units is fully committed to changing the cultures regarding women, the efforts will fail."

## Homeland Defense and Security

### [Boosting rapid dispersal of aircraft pollution](#)

A computer model has been developed to simulate pollution from aircraft. It shows how the exhaust gases might be quickly dispersed by placing an array of aerofoil-shaped panels downwind of aircraft in its take-off run. The next step will be to test the panels in wind tunnels.

### [U.S. Navy Begins Testing On Mobile Meteorological System](#)

The U.S. Navy is testing the next-

generation Meteorological Mobile Facility that "is equipped with tactical weather sensors, which are used to provide data on the risks weather conditions may pose to deployed personnel and their equipment."

### [New Material Lights Up When Detecting Explosives](#)

A material has been created that turns fluorescent if there are explosives molecules in the vicinity. A viable application is airport security.

### [New Microchip Could Increase Military Intelligence Powers Exponentially](#)

A new microchip has been developed that could enable a smartphone-sized device to perform deep-learning functions and allow the military to access and process information in real time.

## Medical

### [Blood Work: ONR-Sponsored Technology Simulates How Legs Bleed](#)

In order to assist combat medics in their training, researchers have designed the first detailed computer simulation model of an injured human leg-complete with spurting blood.

### [Energy From Cellphone Towers Amplify Pain In Amputees](#)

A new study provides evidence that people with nerve injuries, especially amputees, that are exposed to cellphone towers at low, regular levels feel aberrant

sensations and neuropathic pain.

### [Pilot Study Shows Meditation Can Help U.S. Veterans Manage Chronic Pain](#)

According to a pilot study, veterans who practiced meditation reported a 20 percent reduction in pain intensity and pain interference. "The reductions were consistent across several methods by which doctors commonly measure pain in patients."

## WMD

### [Tomahawk's Chops: xGM-109 Block IV Cruise Missiles](#)

The Pentagon aims to invest in the development of Tomahawk and SM-6 missiles which will be capable of hitting moving vessels. \$2 billion has been requested for the purchase of 4,000 Tomahawk missiles which have become the U.S. Navy's major land strike missile.

### [Global Outrage Over North Korea Rocket Launch](#)

Many nations view the launch as clear defiance of multiple U.N. resolutions. National Security Advisor, Susan Rice said, "North Korea's missile and nuclear weapons programs represent serious threats to our interests -- including the security of some of our closest allies -- and undermine peace and security in the broader region."



**Homeland Defense & Security Information Analysis Center**

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