The Power and Promise of High Power Electromagnetic Weapons

How effective would you be without your electronics? The US Air Force currently has the technology to win many battles without harming a soul. Mary Lou Robinson, Chief of the High Power Electromagnetics Division of the Air Force Research Laboratory at Kirtland Air Force Base, takes us into the world of high-tech electromagnetic warfare— and why we aren't using it...

Advanced Materials

High-Performance, Low-Energy Artificial Synapse for Neural Network Computing

For all the improvements in computer technology over the years, we still struggle to recreate the low-energy, elegant processing of the human brain. Now, researchers at Stanford University and Sandia National Laboratories efforts could help computers mimic one piece of the brain's efficient design – an artificial version of the...

'Lossless' Metamaterial Could Boost Efficiency of Lasers, Other Light-Based Devices

Engineers at the University of California San Diego have developed a material that could reduce signal losses in photonic devices. The advance has the potential to boost the efficiency of various light-based technologies including fiber optic communication systems, lasers and photovoltaics. The discovery addresses one of the biggest...
Autonomous Systems

**DJI Unleashes its First Workhorse Drone for Industrial Missions**

At Mobile World Congress, DJI announced its first-ever enterprise drone, the M200. It's based on the guts and controller of the Inspire 2, and folds up small like the Mavic Pro, but this quadcopter is meant to be carried around in pickup trucks and used for search and rescue missions, cell tower inspections, and everything in between. Improved capabilities make it a workhorse machine...

**Augmentics Research Improves Man-Machine Interactivity, Situation Awareness**

IHMC researchers are working to improve the interactivity and situation awareness between individuals and the technological systems with which they interact. The methods use integrated multisensory, multimodal and neural interfaces to both help people understand the behavior and state of a device or system and enable automation in technological systems to dynamically...

Directed Energy

**Guiding Light: Sandia Creates 3-D Metasurfaces With Optical Possibilities**

Metamaterials don’t exist in nature, but their ability to make ultra-thin lenses and ultra-efficient cell phone antennas, bend light to keep satellites cooler and let photovoltaics absorb more energy mean they offer a world of possibilities. Formed by nanostructures that act as “atoms,” arranged on a substrate to alter light’s path in ways no ordinary material can achieve, these surrogate...

**Navy Orders EW Jammers to Foil Detonation of Improvised Explosive Devices**

U.S. military explosives-disposal experts are ordering additional electronic warfare (EW) jammers for deployed infantry warfighters to counter improvised explosive devices (IEDs) in dangerous parts of the world. Officials of the Naval Surface Warfare Center (NSWC) in Indian Head, Md., announced a $31 million order last for the AN/PLT-5 IED electronic jammer to support explosive...
Energetics

AMRDEC Scientist Helps Advance Research for Alternative Energy

A U.S. Army Aviation and Missile Research, Development and Engineering Center senior research scientist helped develop tiny nanoparticles that convert carbon dioxide into methane using only ultraviolet light as an energy source. Dr. Henry Everitt has been working with the chemistry department at Duke University to explore new ways light can be used to add energy to nanoscale...

PEARL Microgrid Shows New Possibilities in Military Energy Resiliency

The Air Force Research Laboratory is leading the way for resilient, cleaner, and cost-competitive energy solutions for military installations. AFRL's Advanced Power Technology Office and the Hawaii Center for Advanced Transportation Technologies have initiated the design of the Pacific Energy Assurance and Resiliency Laboratory, or PEARL, a renewable energy microgrid laboratory that...

Military Sensing

Air Force / University Partnership Enables Human Dynamics Research

Access to collaborative resources allowed researchers to analyze concealed objects of various sizes in the torso and the changes that occurred to the size, shape and motion of an individual. The datasets collected are expected to result in improvements of defense and security processes for the military. Research efforts were also made in the area of simulated entry control point...

NATO Trials Help Improve Degraded Visual Environment Flight Systems

The first priority is taking advantage of enroute precipitation and whiteout hover and landing opportunities. The second priority is obtaining qualitative evaluations from experienced Swiss and German test pilots in DVE. Subsequent technical interchanges will discuss requirements, methodologies and the ability to incorporate them into future DVE-M solutions. AMRDEC's presence at...
Non-Lethal Weapons

US Army Deploys Experimental Counter-Drone Vehicles in Europe

The U.S. Army is dispatching two specially modified Stryker vehicles designed to combat unmanned Aerial Systems (C-UAS). Developed as C-UAS Mobile Integrated Capability (CMIC) demonstrators the vehicles were evaluated during the recent Army Warfighting Assessment exercise at Fort Sill in October. The vehicles were flown to Germany last month to be tested with....

Drones Are a Threat, Pentagon Braces to Face Advancing 'Suicide' Aircraft

The Pentagon, concerned about the danger that small, armed drones pose to U.S. troops, is moving forward with a project that looks beyond remote-control aircraft used by the Islamic State to an even more complex problem: an aerial raid of autonomous suicide bombers. The unmanned bombers have not yet appeared in combat, but defense officials already are researching how to...

RMQSI

New Injection-Grade Additive Produces Highly Repellent Plastics

An injection-grade additive that makes plastic surfaces highly repellent to water, dirt, mud and ice was introduced today by NBD Nanotechnologies (Boston, MA). The additive is the first product in the company’s RepelShell line to reach the market. The patented formulation is composed of functionalized molecules that are drop-in additives during plastic compounding. NBD’s hybrid molecule...

USAMMA Works to Medically Equip the Army, Reduce Cost and Extend Resources

The U.S. Army Medical Materiel Agency, Defense Health Agency, Defense Logistics Agency and the Navy Printing Office teamed up to significantly reduce the cost of a common and essential tool used on the battlefield – the Tactical Combat Casualty Care card. On the battlefield the TCCC is fastened to an injured soldier's uniform or body. It serves as a record of trauma care rendered at...
Survivability & Vulnerability

Navy Scientists Create Synthetic Hagfish Slime to Protect Personnel and Vessels

Scientists and engineers from the US Naval Surface Warfare Center have successfully recreated a defensive biomaterial found in hagfish to aid military personnel. Hagfish mucus is considered to be similar to spider silk and also possesses mechanical properties comparable to Kevlar. It is hoped the synthetic slime can be used to provide non-lethal and non-kinetic defense for naval...

Army Designs Small-Unit Sustainment System that Deploys Rapidly for Soldiers

Soldiers on the move in small units need a shelter they can set up quickly, use as an operations center and still get a good night’s sleep, Army researchers say. A project is underway to give soldiers a solution, one that infantry soldiers have already put to the test. The Small Unit Sustainment System is in development at the Army’s Natick Soldier Research, Development & Engineering Center...

Weapon Systems

Can China and Russia Make U.S. Aircraft Carriers Obsolete?

The US Navy is absolutely confident in the ability of its aircraft carriers and carrier air wings to fly and fight within zones defended by so-called anti-access/area denial (A2/AD) weapons. Both Russia and China—and to a lesser extent Iran—have been developing layered anti-ship and anti-aircraft defenses that would make it more difficult for the U.S. Navy to operate closer to their shores. In the...

Navy Tests Anti-Swarm Boat Missile on Littoral Combat Ship USS Detroit

The US Navy conducted its first test of a short-range missile system designed to protect a Littoral Combat Ship against swarming threats. The test marked the first launch of a missile from the Surface to Surface Missile Module (SSMM) from a Littoral Combat Ship (LCS) as well as the first vertical missile launched from an LCS, as part of the developmental test program for the Surface...
Announcements & Events

2017 Threat Weapons & Effects Training

The TWE is a multi-agency effort drawing from threat exploitation, live fire testing, and combat experience to provide a complete picture on threat lethality. Hands-on experience is provided with threat munitions, test articles, and damaged aircraft hardware. Experienced professionals provide current information on threat system upgrades, proliferation, and lethality.

DATE: May 2-4, 2017

FMS Electronic Warfare Symposium & Workshop

The conference provides an educational opportunity and forum for US Government, U.S. Defense Industry, Academia, and International partners to share information and provide updates on Foreign Military Sales (FMS) and Direct Commercial Sales (DCS) program policy, processes, and improvements.

DATE: May 15-19, 2017

OpenWERX Challenge: Jump the Dog

OpenWERX Challenges provide a forum for groups to use open source / open hardware / creative commons building blocks to develop all new hardware, electronics and software and earn cash prizes. Jump the Dog is focused on development of a Canine Oxygen Mask for High Altitude High Opening (HAHO).

DATE: June 1, 2017

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