

Defense Systems

NEWS DIGEST

22 NOVEMBER 2016 - THE LATEST IN DEFENSE SYSTEM NEWS



AFRL Focusing on Human Performance Technologies

The often overlooked field of human performance monitoring is one of several cutting-edge technologies the Air Force Research Laboratory is focusing on — along with autonomous systems, hypersonics, electronic warfare and more — as part of the department-wide third offset strategy, the lab's commander said Oct. 19. "Somebody asked me at a panel ... what do we not talk about...

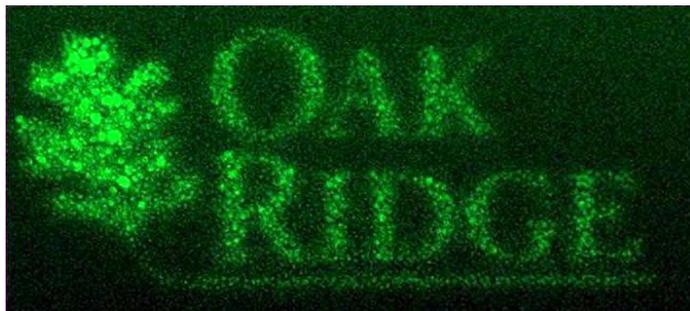
Advanced Materials



ARL Nanomaterials Research May Revolutionize Future Aircraft Engines

At the U.S. Army Research Laboratory, scientists are on the hunt for nanomaterials that will improve engine technology in a big way.

"What we're seeing is a revolutionary property arising in a class of materials that we never thought was possible...



Oak Ridge National Laboratory Technology Writes Nanoscale Features in Metal Ink

Scientists at the Department of Energy's Oak Ridge National Laboratory are the first to harness a scanning transmission electron microscope (STEM) to directly write tiny patterns in metallic "ink," forming features in liquid that are finer than half the width of a human hair...

Autonomous Systems



IBM Watson Internet of Things Platform Gives Drones Cognitive Computing

IBM and Aerialtronics, a Netherlands-based designer and producer of unmanned aircraft systems, today announced the first commercial drones featuring cognitive computing capabilities from the IBM Watson Internet of Things (IoT) Platform on IBM Cloud. Aerialtronics vehicles can provide high-quality inspection services for global organizations across multiple industries...



Tracking Platform, Data Tools and App Marketplace Boost Commercial Drone Use

“Adoption of UAV technology amongst major industries is growing at an incredible rate,” said Dave Famolari, director of Verizon Ventures. “I believe that PrecisionHawk’s high resolution aerial data capture, analysis and storage platform can deliver unique insights and actionable data that can improve critical decision making across several industries.” Another area of focus for 2016 is the...

Directed Energy



ONR Counter Directed Energy Program Fights Back Against Laser Weapons

Back in 2014, a laser gun (the Laser Weapon System, or LaWS), went into service on the warship USS Ponce. Created as a defense system against drones, more laser weapons are making their way to the battlefield. But there’s a problem: Their flying targets have begun to defend themselves.

It was back in 1973 that an Air Force experimental...

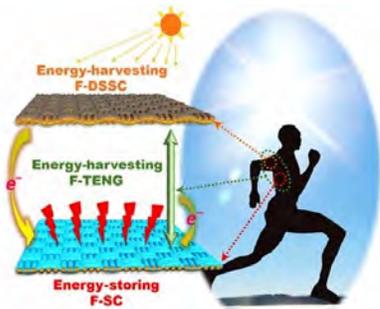


Army's 'Phaser' Could Knock Out Drone Swarm with High-Power Microwave Energy

The U.S. Army is testing a new weapon that shares its name with the handheld laser of "Star Trek" fame. Developed by Raytheon, the Phaser can disable drones and virtually anything electronic with a sweep of its four-foot dish.

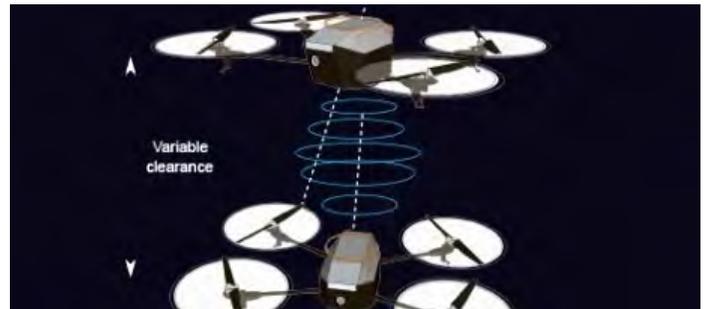
The Army's Air Defense branch, which hasn't had much to do for decades because of America's overwhelming...

Energetics



Wearable Electronics Textile System Uses Nanogenerators, Solar Cells & Supercaps

Wearable electronics fabricated on lightweight and flexible substrate are believed to have great potential for portable devices, but their applications are limited by the life span of their batteries. We propose a hybridized self-charging power textile system with the aim of simultaneously collecting outdoor sunshine and random body motion energies and then storing them in an energy...



Flying Drones Could Recharge Wirelessly in Mid-Air

Scientists have demonstrated a highly efficient method for wirelessly transferring power to a drone while it is flying. The breakthrough could, in theory, allow flying drones to stay airborne indefinitely by simply hovering over a ground support vehicle to recharge opening up new potential industrial applications.

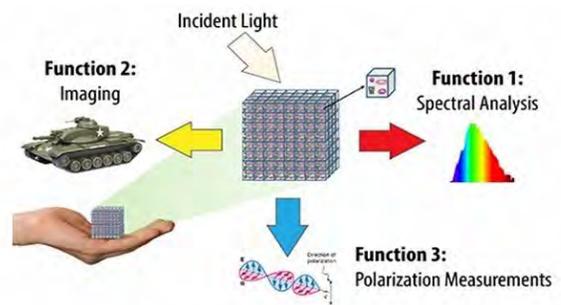
The technology uses inductive coupling, a concept...

Military Sensing



Navy Pairs Thermal Imaging with Spectroscopy for Standoff Chemical Detection

Detecting trace quantities of explosives, chemical or biological agents on a variety of surfaces is challenging—especially from a distance without physically collecting a sample. Spectroscopic techniques have been used, but even though they can be highly selective, they have poor sensitivity. Researchers are increasingly using thermal infrared imaging techniques because they can be...



DARPA's EXTREME Optics and Imaging Program to Enable New Designs

DARPA seeks engineered optical materials unconstrained by "laws" of classical optics to develop vastly smaller, lighter, and more capable devices for advanced imaging applications.

Developers of imaging systems have long been beholden to certain rules of optics designs so well established and seemingly immutable as to be treated as virtual "laws"...

Non-Lethal Weapons



AFRL CHAMP Prepares for Future Fights Against Electronics

U.S. Air Force researchers are refining a first-of-its-kind airborne system that targets electronics. They seek to reduce its size and weight while also designing the technology for integration with a wide array of unmanned platforms and ensuring it doesn't perform a metaphorical suicide via electrocution. At the same time, the service is conducting a study to establish a forward path for the...



Gallium-Nitride Radar Tech Could Be Key to Improving Compact Active Denial Systems

The Raytheon company has spent 17 years researching gallium-nitride for Patriot missile radar, but the technology's potential stretches much further than that.

At the recent Association of the U.S. Army Expo in Huntsville, AL, the company showed off a new radar for the Patriot missile system that uses gallium-nitride (GaN) to generate the radar waves. This solid-state radar...

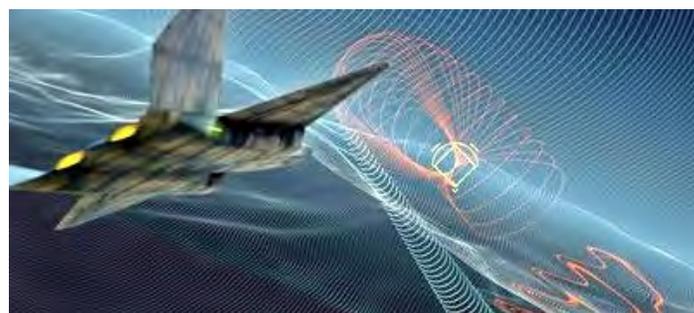
RMQSI



Microgrids Boost Energy Reliability and Efficiency for the Marine Corps

Military microgrids can save the Marine Corps hundreds of man hours, reduce fuel use, and lower costs through automatic load sharing. U.S. Marine Private Robert Bliss explains.

The high-tech gear the Marine Corps uses continues to evolve each year. Power generators allow the Marine Corps to operate its gear no matter the environment...



Today's Battle for Electromagnetic Spectrum Interoperability and Dominance

Cyber warfare, information warfare, electronic warfare (EW), spectrum warfare, electromagnetic maneuver warfare. Those are only some of the names by which U.S. military experts describe their offensive and defensive use of the electromagnetic spectrum.

Some believe it all should be combined under just one term - Spectrum Warfare or Electromagnetic Maneuver...

Survivability & Vulnerability



BlackForest Open Source Cyber-Intelligence System Warns of Possible Cyber Attacks

Coordinating distributed denial-of-service attacks, displaying new malware code, offering advice about network break-ins and posting stolen information – these are just a few of the online activities of cyber-criminals. Fortunately, activities like these can provide cyber-security specialists with advance warning of pending attacks and information about what hackers and other bad actors...



Army Pursuing Alternatives to Heavy Vehicle Armor

In the face of growing threats to ground vehicles, the Defense Department is teaming with industry and academia to pursue alternatives to traditional armor systems. The Pentagon is chasing a range of cutting-edge technologies that could enhance survivability without sacrificing mobility. U.S. military officials have been sounding the alarm about the need for a new approach...

Weapon Systems



Army Innovative Technologies Project an Enabler for MLRS Long-Range Missile

U.S. Army fire-support experts are reaching out to industry for help in developing enabling technologies for a long-range tactical missile able to hit stationary and moving targets about 200 or more miles away.

Officials of the Army Contracting Command at Redstone Arsenal, AL, issued a broad agency announcement this week for the potential \$148 million New and Innovative...



Marine Corps Experimenting with New Service Rifle

On the heels of a widely praised 2015 decision to issue the more maneuverable M4 carbine in lieu of the M16A4 to Marines in infantry battalions, the Marine Corps may be on the cusp of another major weapons decision.

The Marine Corps' experimental battalion, the California-based 3rd Battalion, 5th Marines, has been conducting pre-deployment exercises with the M27 Infantry...

Announcements & Events



2016 Defense Manufacturing Conference (DMC)

28 November – 1 December 2016

The DMC is where top government and industry leaders and manufacturing subject matter experts get together to communicate and collaborate on policies, strategic direction, best practices, funding opportunities, and the latest innovations in support of defense manufacturing priorities.



2017 AIAA S&T Forum and Exposition

9 – 13 January 2017

The 2017 AIAA Science and Technology Forum and Exposition (AIAA SciTech Forum) is structured around the theme: Addressing Full Spectrum Disruption Across the Global Aerospace Community. During exciting and engaging plenary and Forum 360 sessions, speakers and panelists will tackle disruptive and next-generation issues and questions.



28th Annual SO/LIC Symposium & Exhibition

13 – 16 February 2017

Our goal is to stimulate and arbitrate conversation that leads to a closer and more collaborative relationship with USSO-COM. We see the symposium not only an industry event, but a community event where current, former and future operators can meet with innovators to shape the ideas and technology of the future.

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