

Defense Systems

NEWS DIGEST

7 November 2017 - THE LATEST IN DEFENSE SYSTEM NEWS



Army Gear Update: What's Headed Your Way

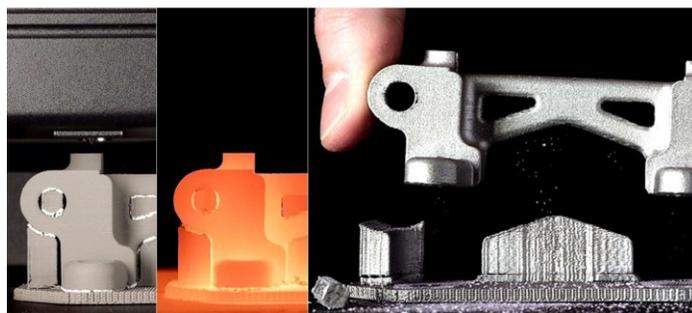
Updates on a few of the soldier-centric projects being developed and fielded by Program Executive Officer Soldier from the unit commander, Brig. Gen. Brian P. Cummings, and his staff. They include leaner, better fitting body armor; an integrated head protection system; modular handgun system; squad automatic rifle improvements; joint targeting system; new combat uniforms and boots...

Advanced Materials



DNA Triggers Shape-Shifting in Hydrogels, Opening a New Way to Make 'Soft Robots'

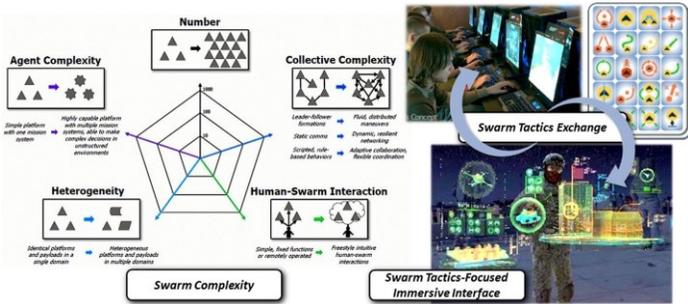
Biochemical engineers at Johns Hopkins University have used sequences of DNA molecules to induce shape-changing in water-based gels, demonstrating a new tactic to produce soft robots and "smart" medical devices that do not rely on cumbersome wires, batteries or tethers. The process used DNA "hairpin" sequences to...



100x Faster, 10x Cheaper: Desktop Metal 3D Printing System

Desktop Metal, an engineering-driven startup whose founders include several MIT professors, has raised over \$200 million in investment from groups such as Google Ventures. If they deliver on their promises of making reliable metal printing 10x cheaper and 100x faster, it might be the tipping point for large scale 3D manufacturing...

Autonomous Systems



DARPA OFFSET: Autonomous Drone Swarms for Warfighters

DARPA's OFFensive Swarm-Enabled Tactics, or OFF-SET, program, aims to equip small infantry units with swarms of 250 or more robotic aircraft and ground vehicles. Under the Phase I research contracts, Raytheon BBN Technologies and Northrop Grumman will lead teams to develop easily deployed and monitored platforms to bolster forces in urban canyons. Each team...

Solar Drone Capable of Quasi-Perpetual Flight Tested in the Arctic

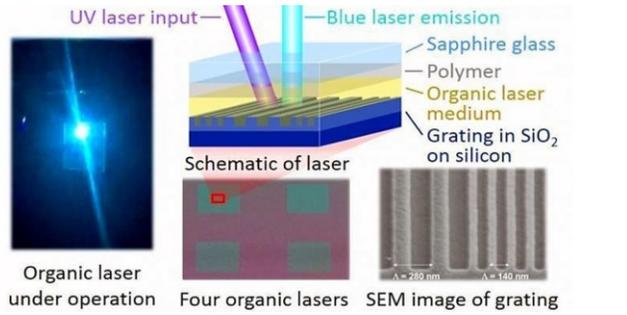
Researchers testing cutting-edge unmanned aerial vehicle technology went to the 24 hours a day sunlight of Greenland to power 'perpetual' solar drone flights. The main goal of the project from the manufacturer's perspective was to find a practical application of a solar-powered drone that could fly indefinitely, as there'd been few real-world uses. The Autonomous Systems Laboratory...

Directed Energy



AFRL Tests High-Power Electromagnetic Electronic Warfare and Cyber Weapons

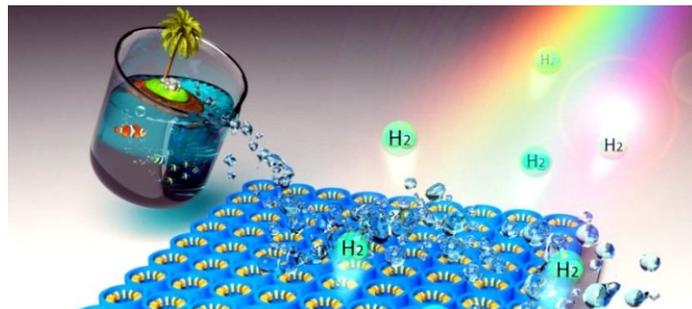
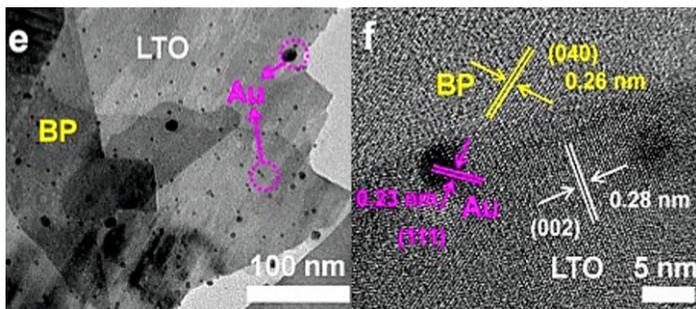
AFRL is pursuing the research, development, application and design of high power microwave systems for non-lethal, non-kinetic weapons. This will build upon the successes of MAXPOWER, a counter IED system demo, Active Denial System, a counter-personnel (non-lethal) demo system, CHAMP, an airborne counter electronics demo weapon, as well as future capabilities, such as...



Organic Lasers One Step Closer to Reality

New research could make lasers emitting a wide range of colors more accessible and open new applications from communications and sensing to displays. Researchers at Kyushu University's Center for Organic Photonics and Electronics Research (OPERA) reported an optically pumped organic thin-film laser that can continuously emit light for 30 ms -more than 100 times longer than previous devices. Unlike the inorganic lasers commonly found in CD drives and laser pointers, organic thin-film lasers...

Energetics



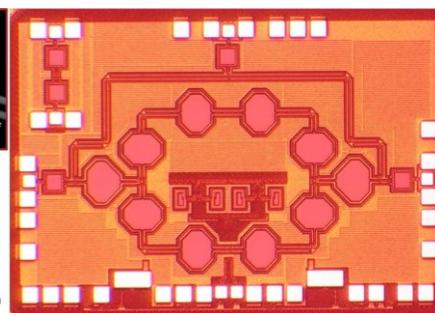
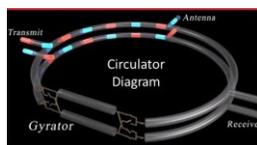
Solar Material for Producing Clean Hydrogen Fuel

Materials like titanium oxide, known as semiconductors with the wide band-gap, are traditionally used to convert sunlight to chemical energy for the photocatalytic reaction. However, these materials are inefficient because only the ultraviolet (UV) part of light is absorbed. Now, a team in Osaka University has developed a material to harvest a broader spectrum of sunlight. The three-part...

New Nanomaterial Can Extract Hydrogen Fuel from Seawater

It's possible to produce hydrogen to power fuel cells by extracting the gas from seawater, but the electricity required to do it makes the process costly. UCF researcher Yang Yang has come up with a new hybrid nanomaterial that harnesses solar energy and uses it to generate hydrogen from seawater more cheaply and efficiently than current materials. Future commercialization could...

Military Sensing



Chip Microphotograph
25GHz fully-integrated non-reciprocal passive magnetic-free 45nm SOI CMOS circulator based on spatio-temporal conductivity modulation

Reconfigurable RF and Microwave Gear for Radar, EW, SIGINT, and Communications

U.S. Army RF and microwave researchers are surveying industry for technologies that could enable reconfigurable multi-function systems able to switch quickly between radar, electronic warfare (EW), signals intelligence (SIGINT), and communications. The Army Contracting Command issued a request for information for the Reconfigurable Multi-Function System Capabilities project...

Researchers Invent Breakthrough Millimeter-Wave Circulator IC

Columbia Engineering researchers, in collaboration with UT-Austin, continue to break new ground in developing magnet-free non-reciprocal components in modern semiconductor processes. The group unveiled the first magnet-free non-reciprocal circulator on a silicon chip that operates at millimeter-wave frequencies (frequencies near and above 30GHz). Most devices are reciprocal...

Non-Lethal Weapons



Virtual Reality for Defense Less About ‘Reality’ Than Results

From audiences ducking to ‘avoid’ moving objects on the screen to gamers suffering motion sickness when using the latest headsets, the gap between reality and simulation is slowly disappearing. The defense world has identified the benefits of this. The market is teeming with solutions that exploit VR for military operations, primarily in order to benefit training and manufacturing. However...



AUDS Counter-Drone System Enhanced for Deployment, Defeat Swarm Attacks

The AUDS counter-UAS defense system has been enhanced for deployment on military and commercial security and surveillance vehicles and with new technology to more effectively defeat swarm attacks by malicious unmanned aircraft systems (UAS), including long range winged drones. The AUDS system has proved to be highly effective against swarm attacks and has...

RMQSI



A Data Tool Could Automate Maintenance of Army’s Most Critical Assets

The Army says it is making headway with an innovative data-processing technique meant to automate maintenance and support of vehicle inventories and weapons systems. The issue is too much data –the Army wants to find ways to reduce the data without compressing or reducing the data for mission-critical systems. The parametric data reduction tool, PaDRT, is a product of the...



UK Sees Progress in Autonomous Military Plans

Autonomous technologies are providing tech companies opportunities to engage with the defense sector on intelligent systems. The UK Ministry of Defence is seeing promising results from its Defence and Security Accelerator Autonomous Last Mile Resupply program, which aims to provide logistics specialists with a better understanding of future supply and demand at the frontline...

Survivability & Vulnerability



JIDO Seeks Nontraditional Partners for Defeating Roadside Bombs, Enemy Drones

The Joint Improvised-Threat Defeat Organization (JIDO) is looking far and wide to find better ways of thwarting enemy unmanned aerial systems and other improvised weapons. Militant groups such as ISIS have employed numerous types of improvised explosive devices to attack U.S. troops and allied forces. The threat posed by enemy UAS has grown significantly over the past two years...

Next Army Combat Vehicle May Feature Active Protection, Laser Weapons

The Army plans to have a blueprint for its successor to the M1A2 Abrams Main Battle Tank and Bradley Fighting Vehicle by 2022. But for now, leaders have only a wish list. The Next Generation Combat Vehicle (NGCV) needs to be smarter and leaner than its predecessors — and completely reimaged, said Maj. Gen. Eric Wesley, Commander, Army Maneuver Center of Excellence,...

Weapon Systems



Details of Sweden's 120 mm Mjolner Development Emerge

Manned firing trials of the prototype/demonstrator of BAE Systems Hagglunds' CV90 twin 120 mm Mjolner mortar system are now underway and it is expected that the Critical Design Review (CDR) will take place by the end of 2017, which will lead to the design freeze and allow production to commence. When completed, the Mjolner system will enter Swedish Army service as the GRKPBV90...

Northrop Grumman Begins Production of MCU for Spider Networked Munition

U.S. Army Contracting Command announced a \$13.4 million order to Northrop Grumman for low-rate initial production of the Spider Increment I A remote-control unit. The improved networked munitions control station for XM-7 Spider anti-personnel networked munitions system provides secure remote command and control capability up to 1500 meters for a hand-emplaced munition field...

Announcements & Events



Combined Light Armor Survivability Panel

CLASP is a “working-level” meeting for engineers and technical personnel from both the Science and Technology development as well as systems engineers from the Program Management arena to exchange information. This creates an ideal opportunity for the technology developers to get direct feedback from the platform system engineer.

DATE: November 14-15, 2017



54th AOC International Symposium & Convention

The 54th Annual AOC International Symposium and Convention will focus specifically on electronic warfare (EW) system adaptability and flexibility along with innovative technologies and tactics to provide Industry, Government, and Militaries a world-class forum to address how we should change and innovate as an EW community.

DATE: November 28-30, 2017



Hacking the Human Element

SOFWERX, in collaboration with MD5, is hosting a technology hackathon related to wearable technologies and their applications. Practitioners, technologists, developers, academia, industry partners, and warfighters will build and demonstrate prototypes to measure, augment, and enhance the human as part of a system performing in austere environments..

DATE: December 1-3, 2017

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