NORAD’s Next Evolution

The North American Aerospace Defense Command’s (NORAD’s) mission fundamentally shifted after Sept. 11, 2001, to address the threat of asymmetric terrorist attacks aimed at North America. But now NORAD is changing its focus once again, re-emphasizing advanced threats from outside the homeland. While the internal terrorism threat endures and continues to change, the last five years…

Advanced Materials

Breakthrough in 3D Printing Cellulose

Using cellulose as a material for additive manufacturing is not a new idea, and many researchers have attempted this but faced major obstacles. When heated, cellulose thermally decomposes before it becomes flowable, partly because of the hydrogen bonds that exist between the cellulose molecules. The intermolecular bonding also makes high-concentration cellulose solutions too...

New ‘Star-Spangled’ Nanomaterial May Open Door to Advanced Electronics

A research team from The University of Texas at Dallas has been involved in analyzing a variety of materials for several years hoping to find one with electrical properties that may be suitable for small, energy-efficient transistors to power future electronic devices. They recently discovered one such material; however it was something no…
Autonomous Systems

**China's Sharp Sword, a Stealth Drone that can Likely Carry 2-Tons of Bombs**

The Sharp Sword combat unmanned aerial vehicle (CUAV), China's stealthy attack drone, won second place in the National Science and Technology Advancement Prizes. Considering the secrecy surrounding China's stealth drones, the Sharp Sword's victory is noteworthy. The drone, known as "Lijian" in Mandarin Chinese, is being paraded as a huge win for Chinese aviation...

**John Deere and Kespry to Bring Drones and Aerial Data to Construction and Forestry**

Heavy equipment makers Deere & Co., better known as John Deere, have forged a strategic alliance with drone-tech startup Kespry. The deal could prove a boon for sales of Kespry's drones and data analytics software. It could help John Deere tap into a new, high-tech means of generating sales and profits in construction and forestry, an area in its overall business that slumped in 2016...

Directed Energy

**US Army Gets Record-Setting 60-kW Laser**

The U.S. Army is taking delivery of a 60 kilowatt-class laser from Lockheed Martin as the company wraps up demonstrations of the capability. "In testing earlier this month, the Lockheed Martin laser produced a single beam of 58kW, representing a world record for a laser of this type," the company said in a statement Thursday. Now that the laser is in Army hands, Radiance Technologies, which has been working on Boeing's High Energy Laser Mobile Demonstrator (HEL MD) program since...

**Dragonfire: the Road to Battlefield Ready Laser Weaponry**

Directed energy weapons are shaping up to be the 'must-have' arms for the mid-21st century, and while developments in the US may have stolen much of the limelight in recent years, every military worth its salt is working towards bringing DEW capability into service. Of all the potential approaches to energy weaponry, arguably none has generated more interest than laser technology...
Energetics

Scientists Develop Efficient Catalytic Material for Fuel Cell Applications

Scientists at Ames Laboratory have discovered a method for making smaller, more efficient intermetallic nanoparticles for fuel cell applications, and which also use less of the expensive precious metal platinum. The researchers succeeded by overcoming some of the technical challenges presented in the fabrication of the platinum-zinc nanoparticles with an ordered lattice structure, which…

NRL Tests Autonomous ‘Soaring With Solar’ Concept

Researchers at the Naval Research Laboratory (NRL), Vehicle Research Section and Photovoltaic Section are building on the proven concept of autonomous cooperative soaring of unmanned aerial vehicles (UAVs). Their research investigates the benefit of solar photovoltaics (PV) to cooperative autonomous soaring techniques, which enables long endurance flights of unmanned…

Military Sensing

Researchers Ponder Field of Light Display (FoLD) Tech for Future DOD Needs

Advanced display technology and the needs of the U.S. Department of Defense (DOD) and U.S. Department of Energy (DOE) were discussed during a two-day IPT meeting and workshop on advanced. The Field of Light Display (FoLD) class of visualization systems provides true 3D without the need for special eyewear/glasses. Types within the FoLD class include: Holographic…

'Lab-on-a-Glove' Could Bring Nerve-Agent Detection to a Wearer's Fingertips

There's a reason why farmers wear protective gear when applying organophosphate pesticides. The substances are very effective at getting rid of bugs, but they can also make people sick. Related compounds—organo-phosphate nerve agents—can be used as deadly weapons. Now researchers have developed a fast way to detect the presence of such compounds in the field using...
Non-Lethal Weapons

Cyberweapons Used Against Iran and North Korea are a Disappointment Against ISIS

America’s fast-growing ranks of secret cyberwarriors have in recent years blown up nuclear centrifuges in Iran and turned to computer code and electronic warfare to sabotage North Korea’s missile launches, with mixed results. But since they began training their arsenal of cyberweapons on a more elusive target, internet use by the Islamic State, results have been a disappointment…

National Police Groups Add ‘De-escalation’ to New Model Policy on Use of Force

A group of 11 national police organizations issued a new model policy Tuesday for police departments nationwide that for the first time incorporates the concept of “de-escalation” when an officer is facing the choice of using deadly force. The new policy also recommends that police departments declare that “It is the policy of this law enforcement agency to value and preserve human life.”...

RMQSI

Taking the Guesswork out of Designing Extremely Complex Military Systems

When designing complex military systems, computational models and simulations can be enormously helpful and help reduce development costs and times. However, realistic, high-fidelity models require enormous amounts of computing power. The use of simplified models can lead to problems and unpredictably. DARPA’s Enabling Quantification of Uncertainty in Physical Systems (EQUiPS)…

New Plating Process at FRCSE Selfless in Protecting Components

An aircraft lifting pin will be the first piece of equipment deployed by the Navy with a new zinc-nickel plating process designed by chemists and engineers at Fleet Readiness Center Southeast. The coating will act as a living barrier between aircraft components and the harsh marine environment in which they deploy. The secret to the coating lies in a chemical reaction between the coating…
Survivability & Vulnerability

SREHDing Explosive Hazards: Robotic System Destroys Explosive Threats

In combat, land mine and improvised explosive device (IED) clearance is a slow, painstaking, stressful job that. Technologies that seek out explosive hazards have matured in recent years to the point that semi-autonomous robots can detect, mark, and even destroy buried threats. The latest such system is called the Standoff Robotic Explosive Hazard Detection System (SREHD), and...

Army Leaders Discuss Next-Generation Armored Vehicle

U.S. Army leaders and industry experts on Wednesday discussed what a next-generation armored vehicle might look like and protection was not a top priority. It’s been three years since budget caps known as sequestration forced the Army to kill the Ground Combat Vehicle, the service’s effort to replace the Cold-War era Bradley fighting vehicle. The GCV was slated to weigh at least...

Weapon Systems

Fire from the Sea

Investment is flowing into naval surface weaponry, notably anti-ship and land-attack missiles, plus naval gunnery, the latter of which is experiencing a renaissance as a versatile means of engaging hostile vessels and land targets. In May 2016, the US Navy completed developmental free flight testing of its next-generation Boeing AGM-84N Block-II+ Harpoon Anti-Ship Missile (ASHM) onboard a Boeing F/A-18E/F Super Hornet. The AGM-84N is the latest iteration of the air-, ship-, land- and submarine-....

Officials: U.S. Missile Defense System Outpaces Threat

The defense system that protects the U.S. from ballistic missile attacks now outpaces the threat from adversaries out to 2020, and the DoD is advancing the capability to stay ahead of the threat into the future, defense officials said on Capitol Hill yesterday. Thomas H. Harvey III, acting assistant secretary of defense for strategy, plans and capabilities, and Missile Defense Agency Director...
Announcements & Events

4th Biennial Strike Challenge

Strike Challenge affords industry an opportunity to provide interactive demonstrations of domestic capability (DOMOPS) and specialized response systems. The focus is on man-pack and light mobility support equipment designed for light responder / specialized unit use in emergency response, survivability, security, search and rescue, and ‘special’ operations.

DATE: August 15-17, 2017

ATEDS 2017

The 23rd Advanced Technology Electronic Defense Systems Conference, hosted by NAVSYSCOM PMA272, provides an annual forum between the warfighter, program management and field activities, military research labs, intelligence community, T&E activities, other services and industry to explore use of the EM environment to improve aircraft survivability.

DATE: August 29-30, 2017

Defense Manufacturing Conference (DMC) 2017

Government and industry leaders and manufacturing subject matter experts get together to communicate and collaborate on policies, strategic direction, best practices, and the latest innovations supporting defense manufacturing priorities. DMC is conducted simultaneously with the Diminishing Manufacturing Sources and Material Shortages (DMSMS) Conference.

DATE: December 4-7, 2017

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