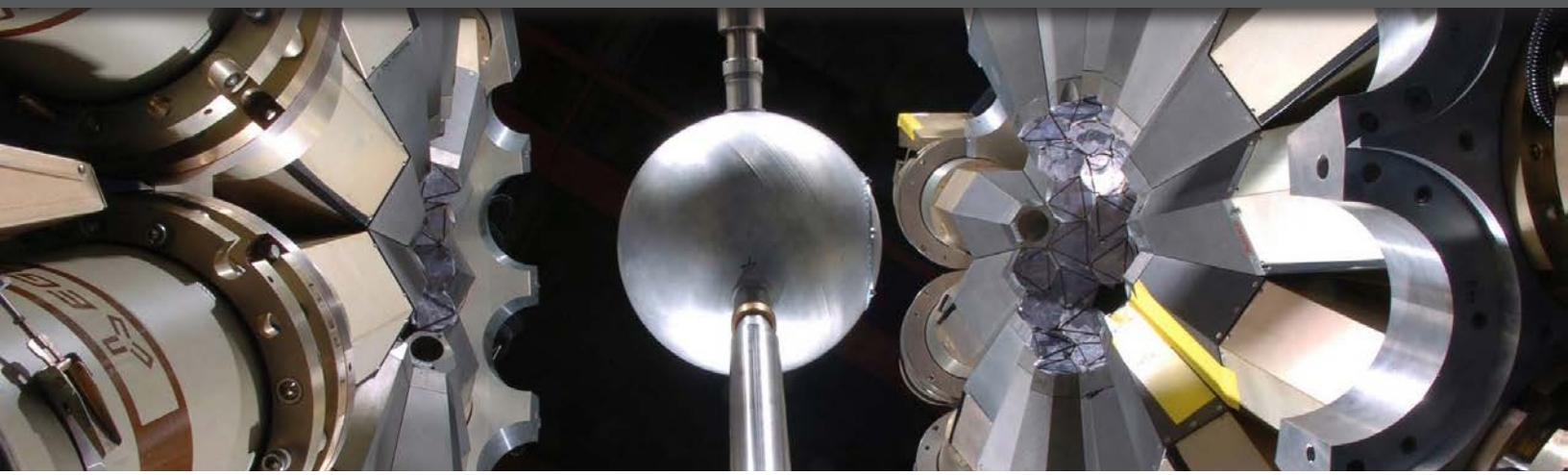
Defense Systems
NEWS DIGEST

27 SEPTEMBER 2016 - THE LATEST IN DEFENSE SYSTEM NEWS



How Things Break (and Why Scientists Want to Know)

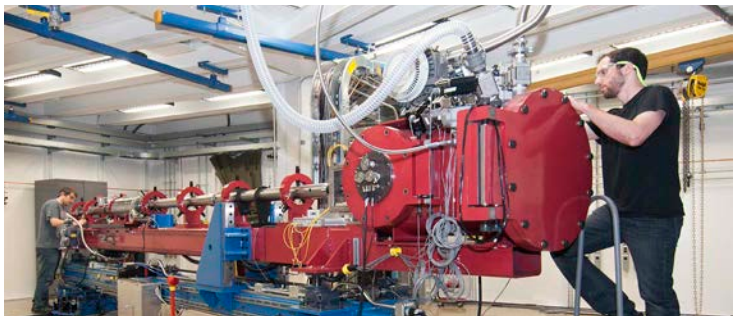
Breaking things can help scientists answer both the most elemental and the most everyday questions.
Humans spend a lot of time creating things—this drives a huge amount of our lives, economically and personally—and we are always in a fight to keep them from breaking down. Houses, roads, cars. Power lines and bridges. Solar cells and computers. Batteries. People.

Advanced Materials

Need Hair? Press "Print"

These days, it may seem as if 3-D printers can spit out just about anything, from a full-sized sports car, to edible food, to human skin. But some things have defied the technology, including hair, fur, and other dense arrays of extremely fine features, which require a huge amount of computational time and power to first design, then print.

Now researchers in MIT's Media Lab have found a way to bypass a major design step... Read More



New Dynamic Compressor Sector to Study Materials at Extreme Conditions

A new, first-of-its-kind-worldwide research capability will help unravel the mysteries of material behavior at extreme conditions and short time scales in support of the National Nuclear Security Administration's (NNSA's) vital national security missions. NNSA, the Department of Energy's (DOE's) Argonne National Laboratory and Washington State University (WSU) will... Read More

Autonomous Systems

Triple Transformer Drone -Who Needs a Runway!

It is the drone that can take off anywhere - but still fly at the speed of a plane.

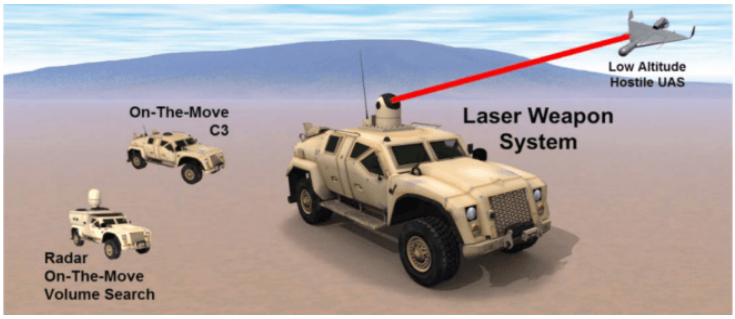
The Quantum Tron craft boasts a wingspan of 11.5 feet, a top speed of 80 kilometers an hour, a 160 kilometer range, a maximum payload of 5.5 pounds, and between 70-120 minutes of flight time... Read More

Nvidia Releases Pascal GPUs for Neural Networks

The Pascal architecture is continuing to find its way through Nvidia's product line-up, with today marking the introduction of its Tesla P4 and P40 GPUs.

According to Nvidia's specs sheet, the P40 clocks in at 12 teraflops for single precision calculation and 47 trillion int8 operations per second... Read More

Directed Energy



Marines GBAD DE On-the-Move Concept to Pair Laser Weapon with Stinger Missile

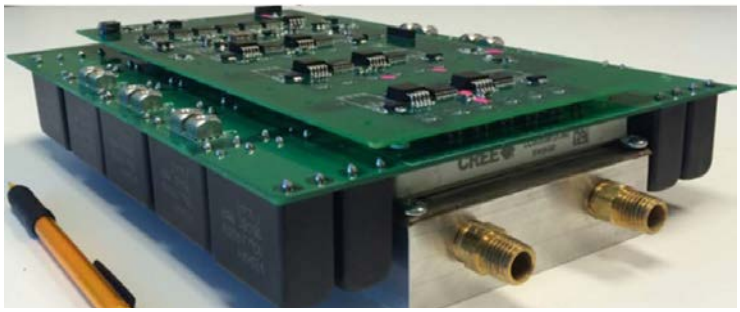
The Marine Corps is moving towards a future in which small dispersed units can protect themselves from incoming enemy drones with laser weapons and from missiles and aircraft with Stinger missiles, with both weapons netted into a detection system and mounted atop Humvees, Joint Light Tactical Vehicles and other combat vehicles... Read More

With Great Power Comes Great Laser Science

It is a very unusual kind of laser: researchers at the photonics institute at TU Wien (Vienna) have built a device which emits ultrashort flashes of infrared light with extremely high energy.

"It is very hard to combine these three properties - long infrared wavelength, short duration... Read More

Energetics



New Tech Promises to Boost Electric Vehicle Efficiency, Range

Researchers at North Carolina State University have developed a new type of inverter device with greater efficiency in a smaller, lighter package – which should improve the fuel-efficiency and range of hybrid and electric vehicles.

Electric and hybrid vehicles rely on inverters to ensure that enough electricity is conveyed... Read More

TARDEC, General Motors Partner to Develop Fuel-Cell Vehicle

General Motors and the U.S. Army Tank Automotive Research, Development and Engineering Center will reveal a Chevrolet Colorado-based fuel cell electric vehicle in October at the fall meeting of the Association of the United States Army in Washington.

The vehicle is being developed... Read More

Military Sensing

DARPA Invites Next Wave of Electronic Warfare, Sensor Tech

The Pentagon is looking for the next wave in warfighting technologies, inviting industry to offer ideas in key areas, such as dealing with the electromagnetic spectrum and ways to manage the flood of data collected by its growing number of sensors.

The Defense Advanced Research Projects Agency is staging a Proposer's Day Sept. 20... Read More

NASA Inspired NODE Platform Turns Smartphone into Any Kind of Sensor

It started when NASA answered a call for a tool to detect dangerous gases and chemicals with a smartphone. The result became a smartphone-linked device that can do, well, just about anything someone can build a sensor for.

When the Department of Homeland Security (DHS) put out its request in 2007, NASA Ames... Read More

Non-Lethal Weapons

Next-Gen "Angry Kitten" EW Targets Fully Adaptive Threat Response Technology

Defeating hostile radar helps shield aircraft from ground-to-air missiles and other threats, so it's a military priority to ensure that EW systems can defeat any opposing radar technology.

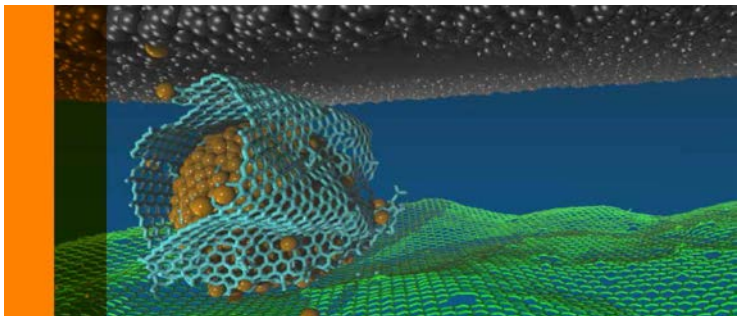
At the Georgia Tech Research Institute (GTRI), which has supported U.S. electronic warfare capabilities for decades, a research team is... Read More

U.S. Army Moves to Improve Electronic-Warfare Tactics

The US Army doesn't need the Russians to jam its electronic equipment when it can do so itself, according to the Army's Electronic Warfare Division chief.

The service is working to refine its electronic warfare (EW) tactics, techniques and procedures (TTP) so there are no surprises on the battlefield... Read More

RMQSI



Argonne Nano Design Works – Using Nanotechnology to Fight Friction and Wear

Diamond and graphene "nanoscrolls" could revolutionize lubrication. Friction and wear are terrible twins that bedevil any machinery with moving parts. Approximately 30 percent of a vehicle engine's power is sacrificed to frictional loss, and wear is a consistent destroyer of engines and other parts.... Read More

AFRL Discovering What's "Bugging" Military Aircraft

WRIGHT-PATTERSON AIR FORCE BASE, Ohio (AFNS) -- As any aircraft maintainer can attest, corrosion is a major factor affecting the overall health of military aircraft. Anything from changing temperatures to environmental factors can precipitate corrosion. One major contributor, however, is often overlooked -- microbes.... Read More

Survivability & Vulnerability

Innovative Lego-like Armor Is Replacing Sandbags

Blast and bullet resistant, giant Lego-like blocks are making the old-fashioned sandbag a thing of the past.

For hundreds of years, sandbags have been the standard for rapidly building fortifications— but now there's a smarter and superior solution. It's called McCurdy's Armor. You can use them to build walls,... Read More

Russia-Develops-Light Weight Ferrite Fiber EM Shielding

A subsidiary of the Russian Electronics Holding Company (itself a subsidiary of Rostec) has developed a ferrite fiber designed for protecting the electronics of armored vehicles, air defense missile systems and aircraft against enemy electronic warfare (EW) systems, according to the Izvestia daily... Read More

Weapon Systems

Army Defends XM25 "Punisher" Counter Defilade Engagement System

Army weapons officials are planning a late-September response to Pentagon investigators' recent criticisms of the XM25 as the service wrestles with how this high-tech but heavy 25mm airburst weapon will fit into combat formations.

In late August, the Pentagon's Inspector General released a scathing audit of the XM25... Read More

Groundbased Midcourse Defense -the Ultimate Smart Weapon

It is the largest, fastest, and most intelligent projectile available to the US Army. Despite this you probably never heard of it nor the Army National Guard Soldiers who "pull the lanyard." If you think a 155mm howitzer shell is big, the M21 rifle is accurate, the MLRS can fire over a long distance, or that the PATRIOT air defense system is sophisticated, you are correct on... Read More

Announcements & Events

Doolittle Institute SOFWERX Ecosystem Registration

The Doolittle Institute SOFWERX, in collaboration with DSIAC, is encouraging DoD, industry, and academia to sign up for and participate in the SOFWERX ecosystem. By joining the Doolittle Institute SOFWERX ecosystem, you are committing to being part of the net-worked solution. You will occasionally receive e-mails informing you of current challenges and how you can participate... Read More

16–17 Nov. 2016 | DoD CBRN Survivability Conference

Omni Orlando Resort, Champions Gate, Orlando, Florida - The DoD CBRN Surviv-ability Conference is an intensely educational two-day symposium for those that sup-port programs with CBRN survivability requirements and want to learn more. This conference aims to lever-age DoD and industry resources by forming strategic collaborative partnerships... Read More | Register by 25 October 2016

Aircraft Survivability Symposium 2016

The theme of the Aircraft Survivability Symposium 2016 is, “Today’s Fight and Tomorrow’s Challenges.” The goal of this three-day, classified symposium is to foster technical dialogue and exchange of information on aircraft survivability topics such as design, operational experience, threats current and future, reliability and maintenance, and testing of aircraft survivability technologies... Read More

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