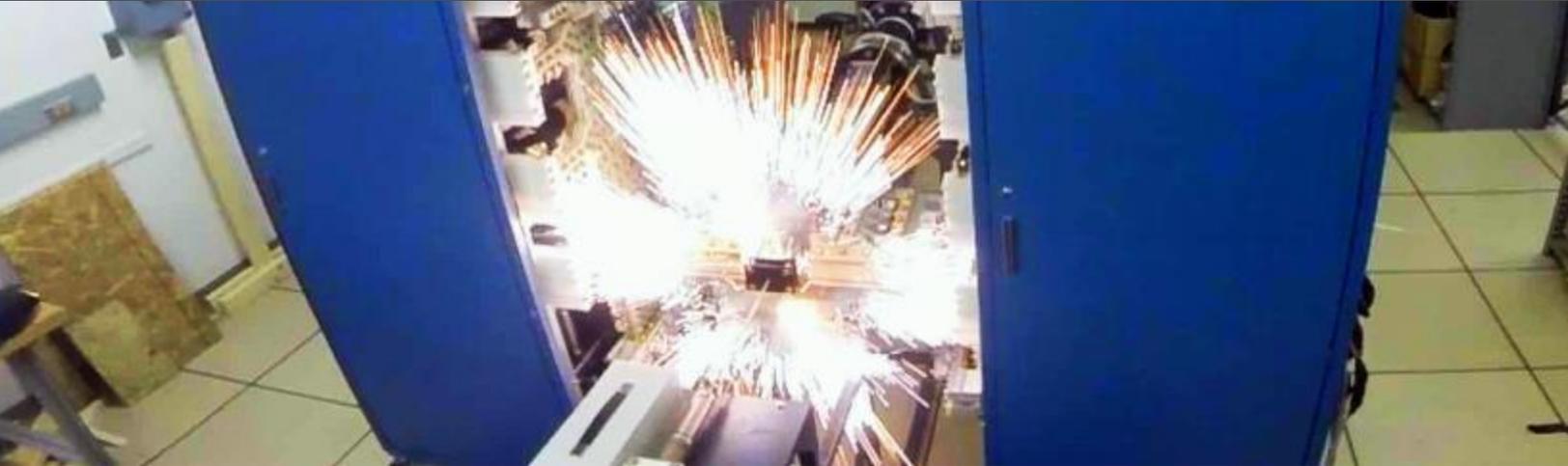


Defense Systems

NEWS DIGEST

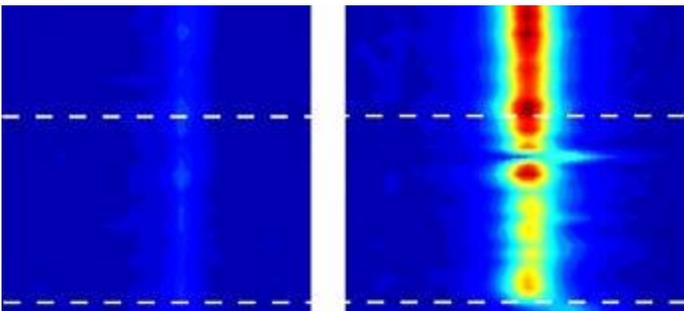
20 DECEMBER 2016 - THE LATEST IN DEFENSE SYSTEM NEWS



Navy Connecting Tech Experts with Academia

New Naval Engineering Education Consortium (NEEC) is connecting technical experts with academia and helping to create partnerships that generate real innovation. As a catalyst for developing the Navy's future workforce, professors and students at universities nationwide are conducting research and development on naval-relevant topics at their campus laboratories. The research...

Advanced Materials



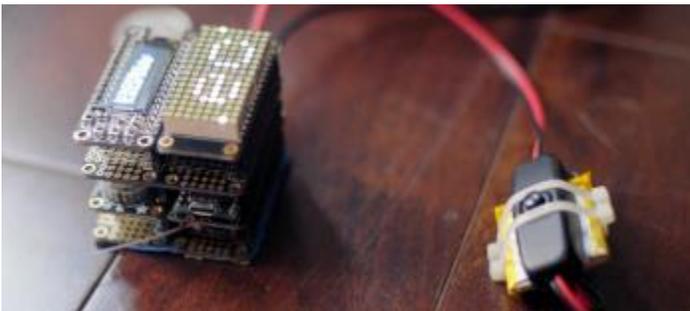
Inside Tiny Carbon Nanotubes, Water Turns Solid When It Should Be Boiling

It's a well-known fact that water, at sea level, starts to boil at a temperature of 212 degrees Fahrenheit, or 100 degrees Celsius. And scientists have long observed that when water is confined in very small spaces, its boiling and freezing points can change a bit, usually dropping by around 10 C or so. But now, a team at MIT has found...

New Chip Architecture May Provide Foundation for Quantum Computer

Quantum computers are in theory capable of simulating the interactions of molecules at a level of detail far beyond the capabilities of even the largest supercomputers today. Such simulations could revolutionize chemistry, biology and materials science, but the development of quantum computers has been limited by the ability to...

Autonomous Systems



Software-Defined Radio Hijacks Wide-Band Frequency-Agile Drone Control Systems

A security researcher has devised a method of hijacking a wide variety of radio- controlled airplanes, helicopters, cars, boats and other devices that use a popular wireless transmission technology. The attack was developed by Jonathan Andersson, manager of the Advanced Security Research Group at Trend Micro DV Labs, and targets a “wideband, frequency-agile 2.4GHz signal protocol” ...



Army Putting Finishing Touches on Robotics and Autonomous Systems Strategy

The Army is putting the finishing touches on its robotics and autonomous systems strategy, according to the director of the Army Capabilities Integration Center.

The strategy, expected to come out this year, is in “the final stages of editing now,” Lt. Gen. H.R. McMaster told Defense News in an interview at the Association of the US Army’s Global Force Symposium. The ARCIC

Directed Energy



Scalable High-Energy Laser Effector Shows Promise

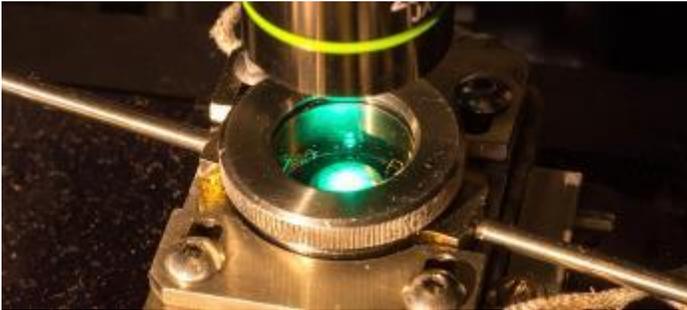
Defense systems company MBDA Deutschland has reported successful testing of a new high-energy laser effector – a key element in a laser-based weapons system – at a military training facility on Germany’s North Sea coast. The company says the tests, which were carried out between October 4th to 14th, “mark the next step in progressing from technology to product”. In this recent ...



Services Look for Eyewear to Protect Against Lasers

The military has put a lot of emphasis lately on developing laser weapons, both to counter tech-based asymmetrical threats and as a way to save money over using conventional weapons. The services also are now looking for ways to protect troops’ eyes from the effects of lasers. The Air Force has awarded a \$30 million contract to Teledyne Scientific & Imaging for the company’s...

Energetics



Power Up: Next Generation Energy Storage Technologies

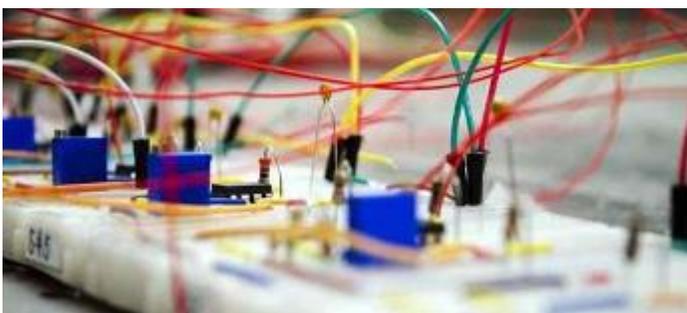
Researchers have made significant strides in new energy generation technologies. Yet, before renewable sources can make a significant contribution to our energy supply, similar strides will be needed in energy storage, making it the new holy grail. “When it comes to renewable energy sources, there can be a mismatch between when power is available and when it’s needed,” said Tim Lieuwen, ...



View DoD Projects to Reduce Safety and Health Impacts of Energetic Materials

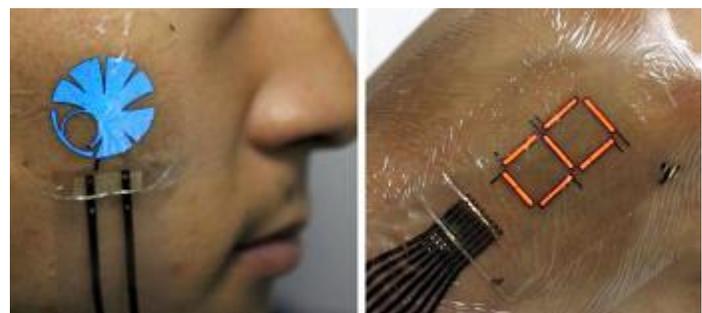
Energetic materials and munitions are used across DoD in mission critical applications such as rockets, missiles, ammunition, and pyrotechnic devices. In these applications, energetic materials and munitions must perform as designed to ensure success in both training and combat operations. There are, however, potential environmental, occupational safety and health risks associated with...

Military Sensing



Aviation Enhancements, Better Biosensors Could Result from New Sensor Technology

Piezoelectric sensors measure changes in pressure, acceleration, temperature, strain or force and are used in a vast array of devices important to everyday life. However, these sensors often can be limited by the "white noise" they detect that can give engineers and health care workers false readings. Now, a University of Missouri College of Engineering research team has developed methods...



Ultraflexible Organic Photonic Skin for Wearable Electronics

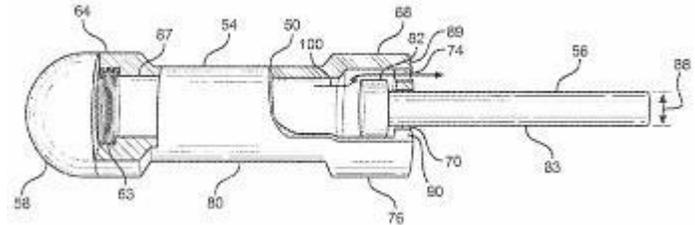
Thin-film electronics intimately laminated onto the skin imperceptibly equip the human body with electronic components for health-monitoring and information technologies. When electronic devices are worn, the mechanical flexibility and/or stretchability of thin-film devices helps to minimize the stress and discomfort associated with wear because of their conformability and softness. For...

Non-Lethal Weapons



Red Electrons: Army Rapid Capabilities Office Fights GPS Jamming, Cyber, EW

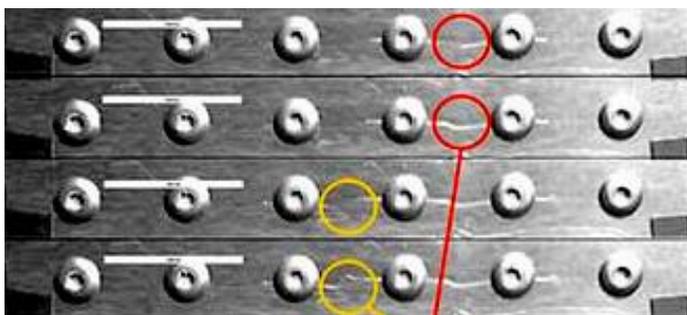
The Army's new Rapid Capabilities Office is focused like a laser on Russian threats to Army networks: both cyber attack (hacking) and electronic warfare (jamming), in particular against the GPS signal on which US forces rely. I've written before that a \$100 million boost to electronic warfare might be an early priority for the new RCO, whose charter is to speed new equipment into service...



Caseless Projectile and Launching System Delivers Jet-Powered Punch

A gun is a powerful tool for putting a hole in a person. That power made them a staple of armies centuries ago and keeps them on the hips of soldiers, law enforcement, and Gadsden-flag-wearing anybody to this day. Among the problems of such a lethal tool is that, in the event someone wants to use force but doesn't want to kill anybody, guns are a bad choice. A whole field of less...

RMQSI



NRL Demonstrates Fiber Laser Sensor Technology for Structural Health Monitoring

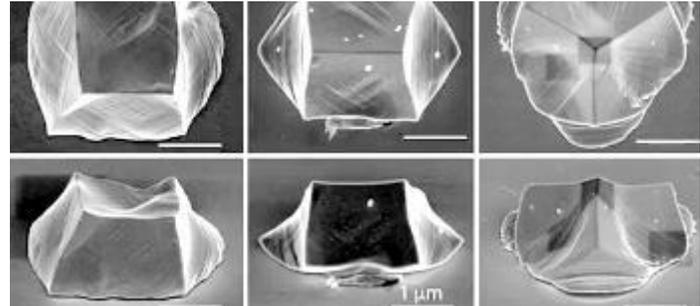
Researchers at the U.S. Naval Research Laboratory (NRL), Optical Sciences Division, in collaboration with the laboratory's Material Science Division, for the first time have demonstrated successful detection of acoustic emission from cracks in riveted lap joints using a distributed feedback fiber laser-acoustic emission sensor. "An automated, in-situ structural health monitoring (SHM)..."



DARPA Program Aims to Facilitate Robotic Servicing of Geosynchronous Satellites

Hundreds of military, government and commercial satellites reside today in geosynchronous Earth orbit (GEO) some 22,000 miles (36,000 kilometers) above the Earth—a perch ideal for providing communications, meteorology and national security services, but one so remote as to preclude inspection and diagnosis of malfunctioning components, much less upgrades or repairs. Even fully functional satellites sometimes find their work-

Survivability & Vulnerability



Industry Tackling Body Armor Burden with New Materials

Body armor weight has been an issue for soldiers for decades, but as lawmakers and the military push to decrease the load, scientists, academics and the defense industry are developing technologies that create lighter vests, buoyant plates and more comfortable fabrics. The Army has been working to develop the next-generation “soldier protection system,” which would...

Rice University Smashing Micro-Cubes at High-Speed for Tougher Nanostructures

Scientists at Rice University are smashing metallic micro-cubes to make them ultrastrong and tough by rearranging their nanostructures upon impact. The Rice team reported in Science this week that firing a tiny, nearly perfect cube of silver onto a hard target turns its single-crystal microstructure into a gradient-nano-grained (GNG) structure. The purpose of the experiment was...

Weapon Systems



Multi-Mission AUSS – Anti-Submarine Warfare, ISR, Undersea Mine Warfare and More

Thales is unveiling its AUSS concept (Autonomous Underwater & Surface System) long-range hybrid multi-mission multi-sensors remote-controlled system capable of operating both above and below the surface. The new naval system was designed for a broad range of military roles including surface intelligence gathering such as ELINT (Electronic Intelligence), IMINT (Imagery...



U.S. Army Testing Aim-Stabilized Weapons

This month the U.S. Army's Army Expeditionary Warrior Experiments (AEWE) program tested the AimLock Stabilized Weapon Platform for the first time during a live fire exercise. This ungainly-looking gun seeks to revolutionize the average infantryman's combat effectiveness by removing human error from the equation entirely. A civilian development company called Rocky Mountain Scientific Laboratory (RMSL), based in Littleton, Colorado, designed the AimLock system. This smart gun's goal is...

Announcements & Events



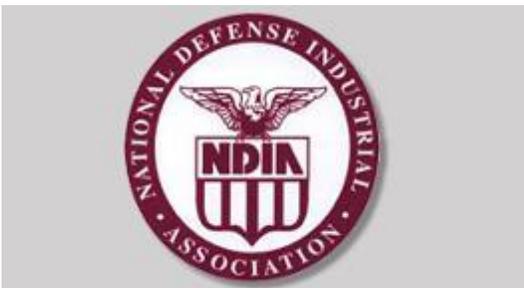
2017 Cyber Security Workshop
28-30 March 2017

Cyber test and evaluation continues to be on the forefront of the acquisition community. In a recent article in The Defense AT&L Journal, The Under Secretary of Defense for Acquisition, Technology, and Logistics commented that achieving a survivable cyber test rating in an operational environment is nearly impossible in the current test environment...



2017 DoD E3 Program Review
3-7 April 2017

We invite you to participate in the 20th DoD Electromagnetic Environmental Effects (E3) Program Review, which provides an information exchange forum for DoD Components, the Federal Government, and Industry E3 and Spectrum professionals. The DoD E3 Program Review will be held at the Lackland AFB in San Antonio, TX, the week of April 3-7, 2017...



2017 Armament Systems Forum
1-4 May 2017

The NDIA 2017 Armament Systems Forum provides the U.S. and International Allied Armament government and industry framework understanding of the evolving global requirements and capabilities. The forum agenda communicates the trends in armament systems and technology which are shaping the enterprise today and in the future. Speakers, presentations, exhibits and demonstrations are planned to enable communication...

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