

Defense Systems

NEWS DIGEST

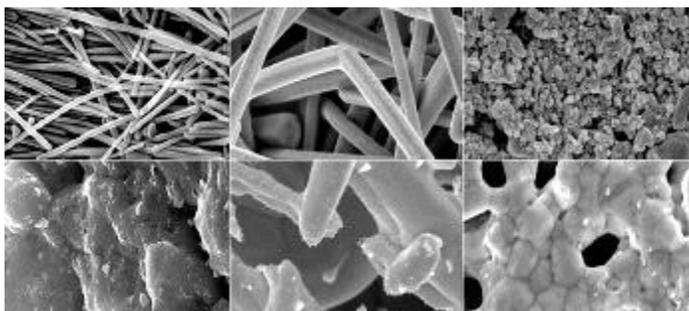
31 JANUARY 2017 - THE LATEST IN DEFENSE SYSTEM NEWS



Experiment Could Change the Way Marines Deploy

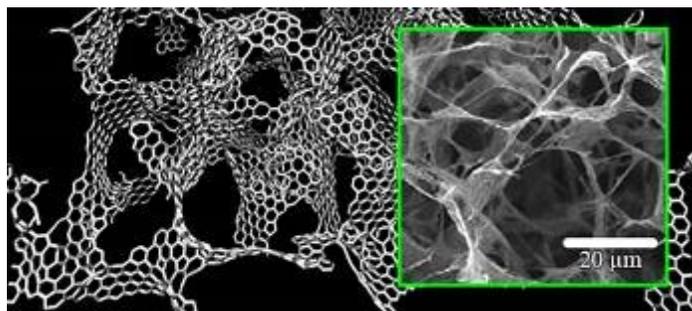
The future Marine Corps fighting force is taking shape in the desert with the start of an 18-month experiment that could transform the basic infantry unit into a deadlier revolutionized team. The Marine Corps must be prepared to counter and defeat a range of adversaries in high-tech environments, leaders say. And the company landing team, which has long been considered the backbone of the...

Advanced Materials



Nanowire “Inks” Enable Paper-Based Printable Electronics

By suspending tiny metal nanoparticles in liquids, Duke University scientists are brewing up conductive ink-jet printer “inks” to print inexpensive, customizable circuit patterns on just about any surface. Printed electronics, which are already being used on a wide scale in devices such as the anti-theft radio frequency identification...



MIT’s Porous, 3D Graphene can be 10 Times as Strong as Steel but Much Lighter

A team of researchers at MIT has designed one of the strongest lightweight materials known, by compressing and fusing flakes of graphene, a two-dimensional form of carbon. The new material, a sponge-like configuration with a density of just 5 percent, can have a strength 10 times that of steel. In its two-dimensional form...

Autonomous Systems



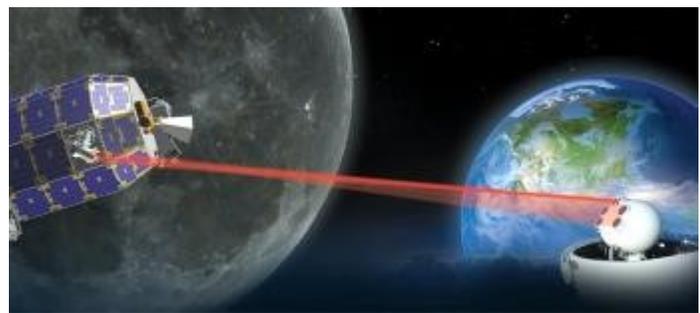
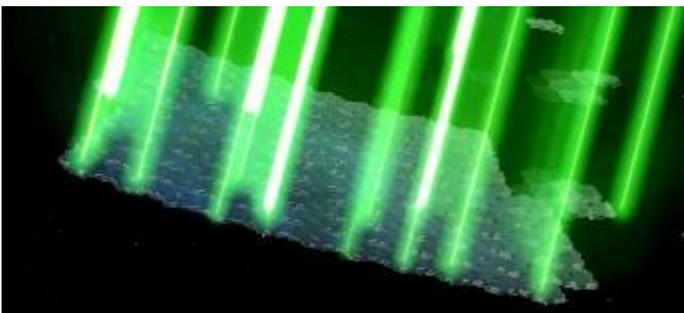
SkyWall100 Uses Shoulder-fired CUAS Net Cannon to Combat Drones

A group of English engineers have developed a new device for downing quadcopters that stray into restricted airspace: the SkyWall 100. This shoulder-mounted net launcher weighs 22 pounds and runs on compressed gas but does reportedly offer a 100-meter range with an 8-second reload time. What's more, the system uses a "smart scope" that automatically calculates the drone's...

ONR Developed CARACaS Software Controls Navy Swarmboats

Drone boats belonging to the U.S. Navy have begun learning to work together like a swarm with a shared hive mind. Two years ago, they would have individually reacted to possible threats by all swarming over like a chaotic group of kids learning to play soccer for the first time. Now the drone boats have showed that they can cooperate intelligently as a team to defend a harbor area...

Directed Energy



Laser Weapons Will Turn Earth's Atmosphere Into Lenses, Deflector Shields

Earth's atmosphere is a constant annoyance for anyone trying to do anything useful with light. Even if you discount things like clouds, smog, and smoke, there are layers and pockets of air of varying temperatures that routinely make things go all wobbly. This is why most half-way decent telescopes are built on the tops of mountains and all the best telescopes are out in space...

Space-Based Laser Communications Break Threshold

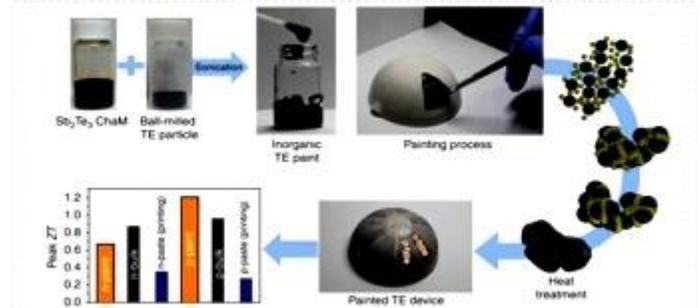
Recent and upcoming deployments of satellite laser communication systems are bringing Internet-like speeds for data transmission in space. The result could be a revolution in communication, both on Earth and across the solar system. Laser communications through optical fibers move tens of terabits of data every second between cities and across oceans. But for the majority of Earth's...

Energetics



Northern Ohio Institutions Become Laboratories for Future Energy Usage

Case Western Reserve University, NASA Glenn Research Center and the University of Toledo will serve as “living laboratories” that demonstrate the value of integrating distributed energy sources with the assortment of devices, equipment and other power consumers within buildings and across the grid. The effort begins this month with a one-year award administered by Pacific...



Paintable Liquid Thermoelectric Material for Harvesting Energy from Waste Heat

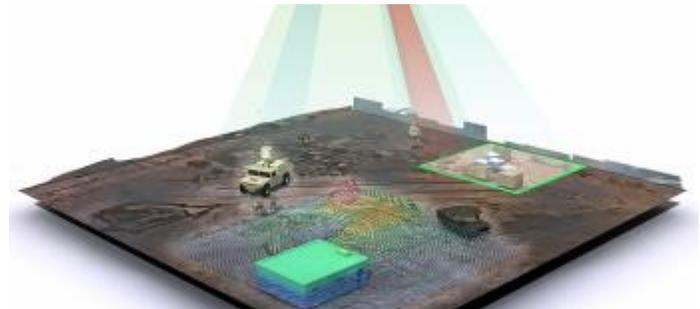
A new study, led by Professor Jae Sung Son of Materials Science and Engineering at UNIST has succeeded in developing a new technique that can be used to turn industrial waste heat into electricity for vehicles and other applications. In their study, the team presented a new type of high-performance thermoelectric (TE) materials that possess liquid-like properties. These newly...

Military Sensing



Metamaterial Radar Is Exactly What Delivery Drones Need

Echodyne's metamaterial-based radar is about the size of a cellphone and has a performance comparable to that of phased-array radars that the military uses while costing much less. As we've pointed out over the last few years, there are some issues with the idea of urban or suburban delivery drones. Besides the fact that they're illegal right now, the biggest technological problem is that...



DARPA ReImagine: Reconfigurable Imaging Sensor with Smart Pixels

Picture a sensor pixel about the size of a red blood cell. Now envision a million of these pixels—a megapixel's worth—in an array that covers a thumbnail. Take one more mental trip: dive down onto the surface of the semiconductor hosting all of these pixels and marvel at each pixel's associated tech-mesh of more than 1,000 integrated transistors, which provide each and every pixel...

Non-Lethal Weapons



Respecting the Digital Rubicon: How the DoD Should Defend the U.S. Homeland

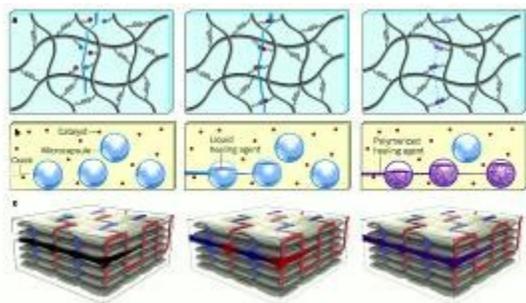
The Department of Defense Cyber Strategy is a model for clear writing and thinking on cybersecurity. Unlike earlier DoD strategies, gone is tone-deaf language about “dominating” cyberspace. Instead, the strategy recognizes an important but limited role for the DoD in the security of cyberspace. The strategy divides that role into three missions: (1) defense of the DoD Information...



Marines May Expand Psychological Operations with New Job Specialty

Marines may win physical battles but still lose because of failure to fight effectively in the cognitive dimension. As the Marine Corps looks to prepare for future conflicts and expand key highly skilled communities, the service will consider adding a new primary military occupational specialty: 0521, Military Information Support Operations. A briefing document obtained by Military.com proposes...

RMQSI



Polymers with Autonomous Life-Cycle Control

The lifetime of man-made materials is controlled largely by the wear and tear of everyday use, environmental stress and unexpected damage, which ultimately lead to failure and disposal. Smart materials that mimic the ability of living systems to autonomously protect, report, heal and even regenerate in response to damage could increase the lifetime, safety and sustainability of many...



U.S. Navy Wants a Floating Fiber Optic Network as Backup

The U.S. Navy relies upon satellite and other communications systems to make sure ships, planes, and sailors can share information across the Seven Seas. In peacetime, those systems are a given. But what happens in wartime, when satellites are shot down and other forms of comms are jammed or otherwise disrupted? That's a very good question. The United States, NATO, and...

Announcements & Events



[73rd Annual Forum & Technology Display](#)

AHS International's 73rd Annual Forum & Technology Display is the world's leading international technical event on vertical flight technology. The three-days of technical sessions will include some 250 technical papers on every discipline from Acoustics to Unmanned Systems, as well as invited presentations and discussions by leaders in industry and government. DATE: May 9-11, 2017



[2017 Tactical Wheeled Vehicles Conference](#)

The purpose of the NDIA Tactical Wheeled Vehicle Division is to conduct a forum for Government and Military Service wheeled vehicle and related systems Program Executives/Managers, leaders and technical experts to present, discuss, and answer questions related to vehicle acquisition programs. DATE: May 15-17, 2017



[AIAA Propulsion and Energy 2017](#)

At the AIAA Propulsion and Energy Forum and Exposition (AIAA Propulsion and Energy 2017), the energy and excitement will result as much from the networking opportunities and plenary discussions as from the technical sessions. Date: July 10-12, 2017

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