*Monthly*Focus

Army researchers detect broadest frequencies ever with novel quantum receiver
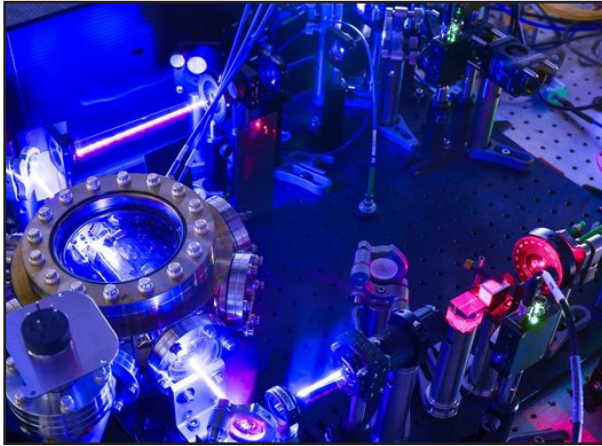
A new quantum sensor is capable of analyzing the full spectrum of radio frequency and real-world signals, unleashing new potentials for Soldier communications, spectrum awareness and electronic warfare. Army researchers built the sensor, which can sample the radio-frequency spectrum — from zero frequency up to 20 GHz — and detect AM and FM radio, Bluetooth, Wi-Fi and other communication signals. https://www.army.mil/article/242980/

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## Study identifies potential link between Soldiers exposed to blasts, Alzheimer's

Research shows that Soldiers exposed to shockwaves from military explosives are at a higher risk for developing Alzheimer's disease -- even those that don't have traumatic brain injuries from those blasts. A new Army-funded study identifies how those blasts affect the brain. https://www.army.mil/article/243681

Army, Argonne scientists explore nanoparticles for disruptive energetics

Material scientists from the U.S. Army and Department of Energy conducted a study of plasma-treated aluminum nanoparticles with the goal of improving future propellants and explosives. https://www.army.mil/article/243587

## Collaboration leads to 2D polymer discovery
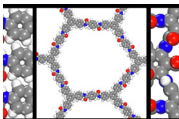
Army researchers reached a breakthrough in the nascent science of two-dimensional polymers thanks to a collaborative program that enlists the help of lead scientists and engineers across academia known as joint faculty appointments. https://www.army.mil/article/243684/

Black History Month 2021 comes to a close

For researchers looking to the future is in the job description. For one Army scientist, the future has always been on his mind. Meet Dr. Troy Alexander, chief of the Technology Forecasting Office. https://www.army.mil/article/243666/

Army-funded researcher receives award for mathematical theory
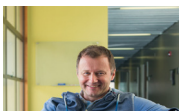
A U.S. Army-funded researcher who developed a mathematical theory for complex systems such as networks, power grids and the human brain, received a prestigious scientific award. https://www.army.mil/article/243716

NATO recognizes Army researcher for contributions to innovation

A U.S. Army researcher received high honors from NATO for driving innovation for military communication systems. Dr. Niranjan Suri, a researcher with the U.S. Army Combat Capabilities Development Command, now referred to as DEVCOM, Army Research Laboratory, received the NATO Science and Technology Organization's Information Systems Technology Panel Individual Excellence Award. https://www.army.mil/article/243419/

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Army awards grants to seven academic teams

The U.S. Army awarded grants to seven academic teams across scientific disciplines to advance basic science research and enable the development of technologies critical to national defense. https://www.army.mil/article/243607

Army performs first autonomous robotics test at new site near Baltimore

Army researchers expanded their area for robotics to a site just north of Baltimore. The Army Research Laboratory now uses the land as part of the ARL Robotics Research Collaborative Campus for experimentation and research operations. https://www.army.mil/article/243448/

Army, industry discuss enabling emerging cloud technologies

Emerging technologies such as the Internet of Battlefield Things, and artificial intelligence/machine learning spur innovation according to leading scientists from DOD and industry who met for a virtual discussion on enabling cloud technologies Jan. 27. https://www.army.mil/article/243139/

Army researchers expand study of ethics, artificial intelligence

The Army of the future will involve humans and autonomous machines working together to accomplish the mission. According to Army researchers, this vision will only succeed if artificial intelligence is perceived to be ethical. https://www.army.mil/article/242923/

Research advances autonomous off-road navigation

Soldiers navigate a wide variety of terrains to successfully complete their missions. As human/agent teaming and artificial intelligence advance, the same flexibility will be required of robots to maneuver across diverse terrain and become effective combat teammates. https://www.army.mil/article/242895/

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