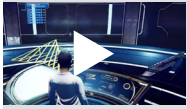


AFRL's Digital Transformation



Learn more about how AFRL employs digital transformation to rapidly develop and deliver transformational strategic capabilities, advance its science and technology portfolio and management processes, enhance the competition for ideas, and sustain an enduring scientific and technological base. [Watch Here](#)

711th HPW Facilities Highlight



See how the 711 Human Performance Wing conducts aerospace

physiology research, and test and evaluation at the Centrifuge and Research Altitude chambers to evaluate pilot life support systems to combat gravitational pull and pressures at varying altitudes, and use the data to study and improve the performance of pilots and aircrews. [Watch Here](#)

AFRL Lab Life - Episode 73: A 'Tripp' through Aerospace Physiology



Dr. Lloyd Tripp discusses aerospace physiology and his work within AFRL's 711th Human Performance Wing. The episode navigates through Dr. Tripp's fascinating 45 year career, including work with AFRL's Research Altitude Chambers and the only human rated centrifuge owned by the Department of Defense. [Listen Here](#)

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Vertical

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TOP NEWS STORY

AFRL REGIONAL HUB NETWORK PROGRESSES AS IT ENTERS 2ND YEAR

WPAFB, OH — The Air Force Research Laboratory's, or AFRL, Regional Hub Network pilot initiative, launched in February 2022, began its second year with Cornell and Purdue universities as peer leaders of academic, industrial and national laboratory partners across the Mid-Atlantic and Midwest. The network members have collaborated on science and technology, or S&T, initiatives, aiming to leverage unique research, infrastructure and workforce across the region. While two regions currently exist, the vision seeks to establish regional networks in multiple areas, said Dr. Richard Vaia, chief scientist, AFRL Materials and Manufacturing Directorate. "Right now, the regional teams are moving from stand up to initial phase of operations with project calls, member meetings and jointly



developed intellectual property and data sharing agreement," Vaia said. "These complement existing technology development programs at AFRL by emphasizing co-dependent research between members and AFRL scientists and engineers on high-risk sprints to risk reduce emerging concepts and prepare them for dual-use business opportunities." The AFRL Regional Hub Networks were established in response to the U.S. Air Force S&T Strategy, seeking a broader range of approaches to accelerate the transition of new technologies into economically viable products in the supply chain through innovative public and private partnerships, Vaia said. [Full Story](#)

PEOPLE OF AFRL



The Air Force Research Laboratory, or AFRL, recognized its top performers of 2022 at the AFRL Annual Awards Ceremony March 2, 2023, at the Air Force Institute of Technology's Kenney Hall at Wright-Patterson Air Force Base, Ohio. The ceremony recognized the accomplishments of AFRL personnel during the previous year in numerous categories including those for enlisted Airmen, Guardians and officers as well as civilians and teams. "No matter where you are in AFRL, this is a great opportunity to come together and talk about what we do each and every day," said Maj. Gen. Heather Pringle, AFRL commander. "Every day you make this lab stronger and better. You are accelerating science and technology and serving as one lab for not one service, but two services." [Read More](#)

ROBOTICS COMPETITION TEACHES KIDS TEAMWORK, STEM

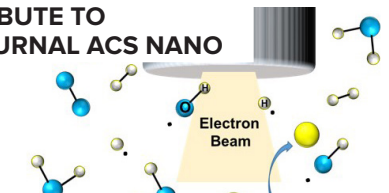
WPAFB, OH — Senior Air Force Research Laboratory, or AFRL, leaders joined middle and high school students at Hobart Arena in Troy, Ohio, March 11, 2023, as the students competed in the For Inspiration and Recognition of Science and Technology, or FIRST, Tech Challenge Ohio State Championship. The FIRST Tech Challenge is a competition in which seventh through 12th grade students design, build and program robots to compete against other teams from across Ohio, learning science, technology, engineering and mathematics, or STEM, and teamwork in the process. "The competition is more than just robotics," said Col. Joel Luker, AFRL vice commander. "It builds life skills for them. It teaches them how to work together, it teaches them communication skills and how to have fun too." Teamwork is key to the work done at AFRL, Luker said.



Researchers must know how to reach out and integrate ideas from other disciplines to make something that works together. Teams of students built and programmed robots for the competition using Java with the help of coaches, mentors and volunteers. Match play involved alliances of two teams each, or four robots total, scoring points by stacking cones on pylons of various heights. [Full Story](#)

AFRL RESEARCHERS CONTRIBUTE TO PRESTIGIOUS SCIENTIFIC JOURNAL ACS NANO

WPAFB, OH — A team of Air Force Research Laboratory, or AFRL, researchers partnered with Pennsylvania State University to publish an article in the February 2023 issue of the prestigious scientific journal ACS Nano. The publication highlights an innovative method for manipulating and tailoring the optoelectronic properties of transition metal dichalcogenides, or TMDs, a specific class of two-dimensional layered materials essential for developing emerging sensing and electronic technologies. The research team's findings have potential future applications for both the Department of the Air Force and the commercial market, said Dr. Rahul Rao, a research group leader in AFRL's Materials and Manufacturing Directorate. "Anywhere you might expect to see electronics in the future, you could find these materials," Rao said. "This research has potential implications



for use in quantum devices, satellite communications, aircraft, biosensing, vapor sensing. We wanted to be able to modify and control the properties of [TMDs] in order to know exactly what they can do so that we can make these devices." TMDs are comprised of ultrathin, two-dimensional layers of transition metals and chalcogenides — specific classes of elements found on the periodic table — that are only three atoms thick, said Dr. Ryan Selhorst, lead author and research scientist in AFRL's Materials Development section of the Polymers and Specialty Materials branch. [Full Story](#)