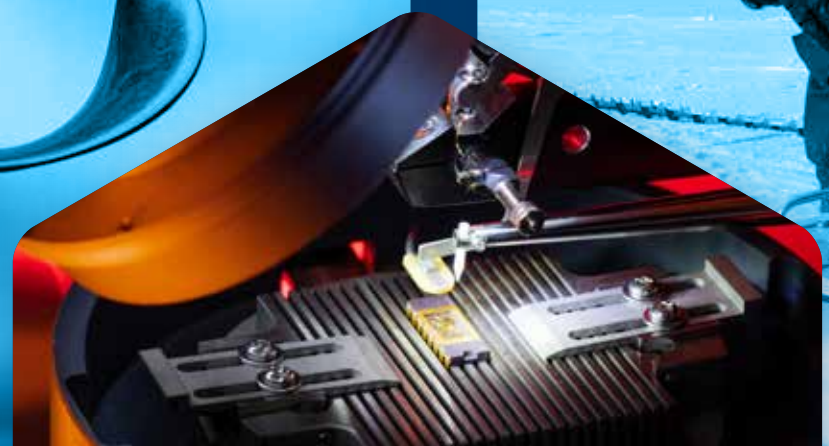
2024

FEDERAL R&D IN PICTURES



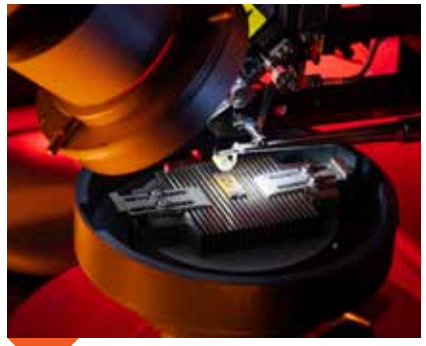
FLC

Federal Laboratory Consortium
for Technology Transfer

2024 PLANNER AT A GLANCE

DECEMBER 2023

JANUARY 2024



FEBRUARY

MARCH

APRIL

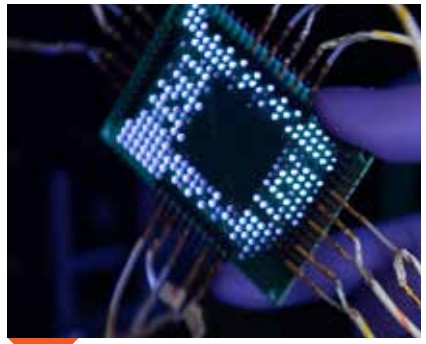
MAY

JUNE

JULY

AUGUST

SEPTEMBER



OCTOBER

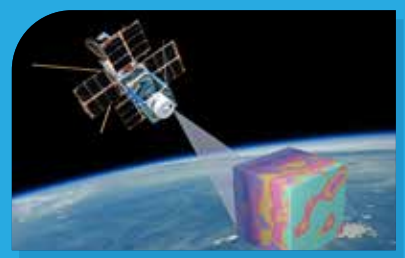
NOVEMBER

DECEMBER 2024

JANUARY 2025

LAB TECH EXTRAS

There were too many stunning photos to fit into just 14 months. Check out the Lab Tech Extras section following January 2025 for bonus photos of more innovative federal technologies.



....and more!

LEARN MORE *about the featured labs and technologies in the Laboratory Directory on the last page.*

ABOUT THE FLC

The Federal Laboratory Consortium for Technology Transfer (FLC) is a nationwide network of over 300 federal laboratories, agencies and research centers that fosters commercialization best practice strategies and opportunities for accelerating technologies from out of the lab and into the marketplace. The American taxpayers' investment in our national laboratories' research and development (R&D) efforts has spurred scientific and technological breakthroughs that can return dividends for our economy. New industries, businesses and jobs are created when technology transfer (T2) is introduced to the marketplace.

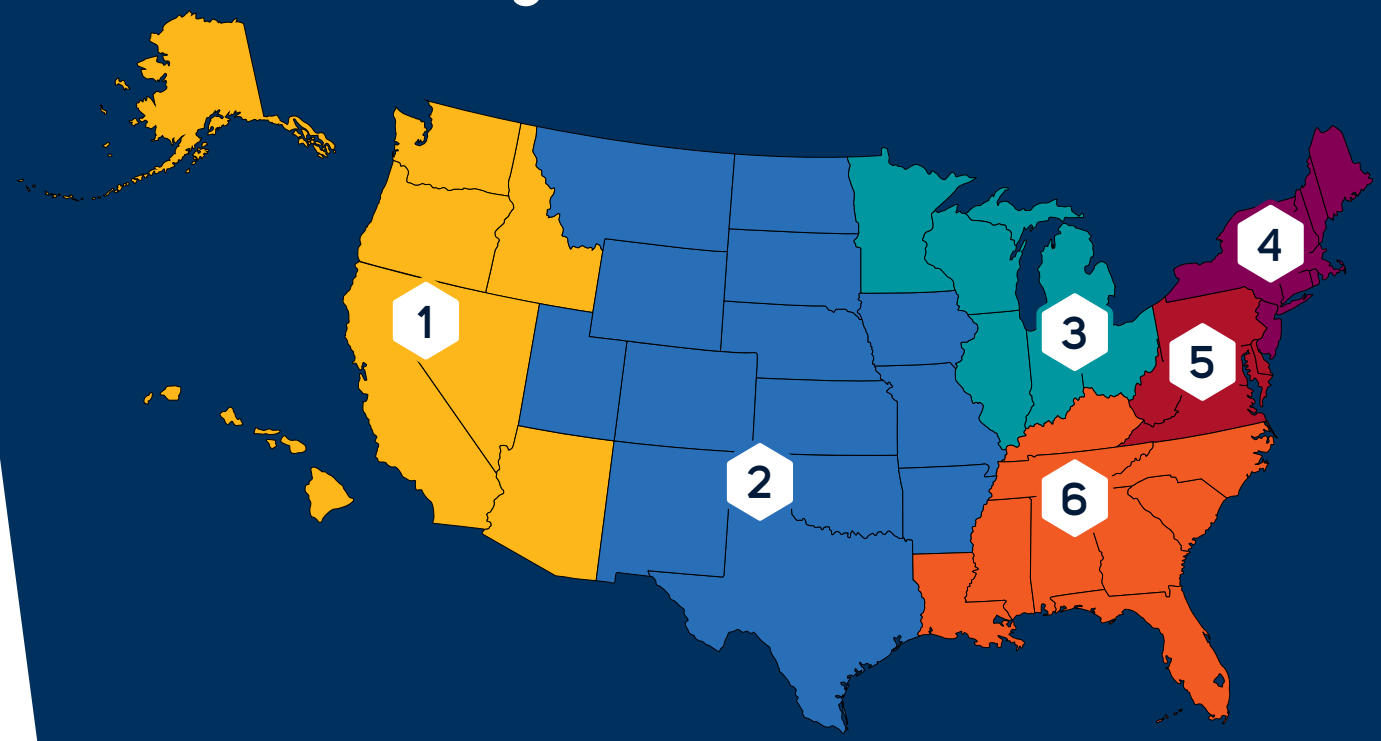
The FLC's mission is to support federal laboratories in maximizing the impact of technology transfer for the benefit of the United States. The FLC creates and provides resources such as education and training, tools and services, so that federal labs are better able to create partnerships, navigate the commercialization process and achieve market success.

By serving as the touchpoint for T2 communication, education and open data services tools, the FLC plays a central role in providing the skilled T2 workforce that our country desperately needs. These highly motivated T2 professionals are the driving force behind federal labs' ability to effectively partner with the private sector. The FLC strives to support the dedicated individuals who make up the federal laboratory system by continuing to serve as a gateway for industry, government and academia to access R&D in an effort to stimulate our nation's economic health.

@federallabs

FLC
Federal Laboratory Consortium for Technology Transfer

FLC Regions



1 Far West
Regional Coordinator:
Jennifer Stewart,
National Oceanic and Atmospheric Administration

2 Mid-Continent
Regional Coordinator:
Andy Myers,
Kansas City National Security Campus

3 Midwest
Regional Coordinator:
Annie Bullock-Yoder,
Naval Surface Warfare Center,
Crane Division

4 Northeast
Regional Co-Coordinators:
Laurie Bagley, Princeton Plasma Physics Laboratory;
David Lee, U.S. Army Combat Capabilities Development Command Armaments Center

5 Mid-Atlantic
Regional Coordinator:
Vladimir Popov, Frederick National Laboratory for Cancer Research

6 Southeast
Regional Coordinator:
Sharon Soucek,
National Institute of Environmental Health Sciences

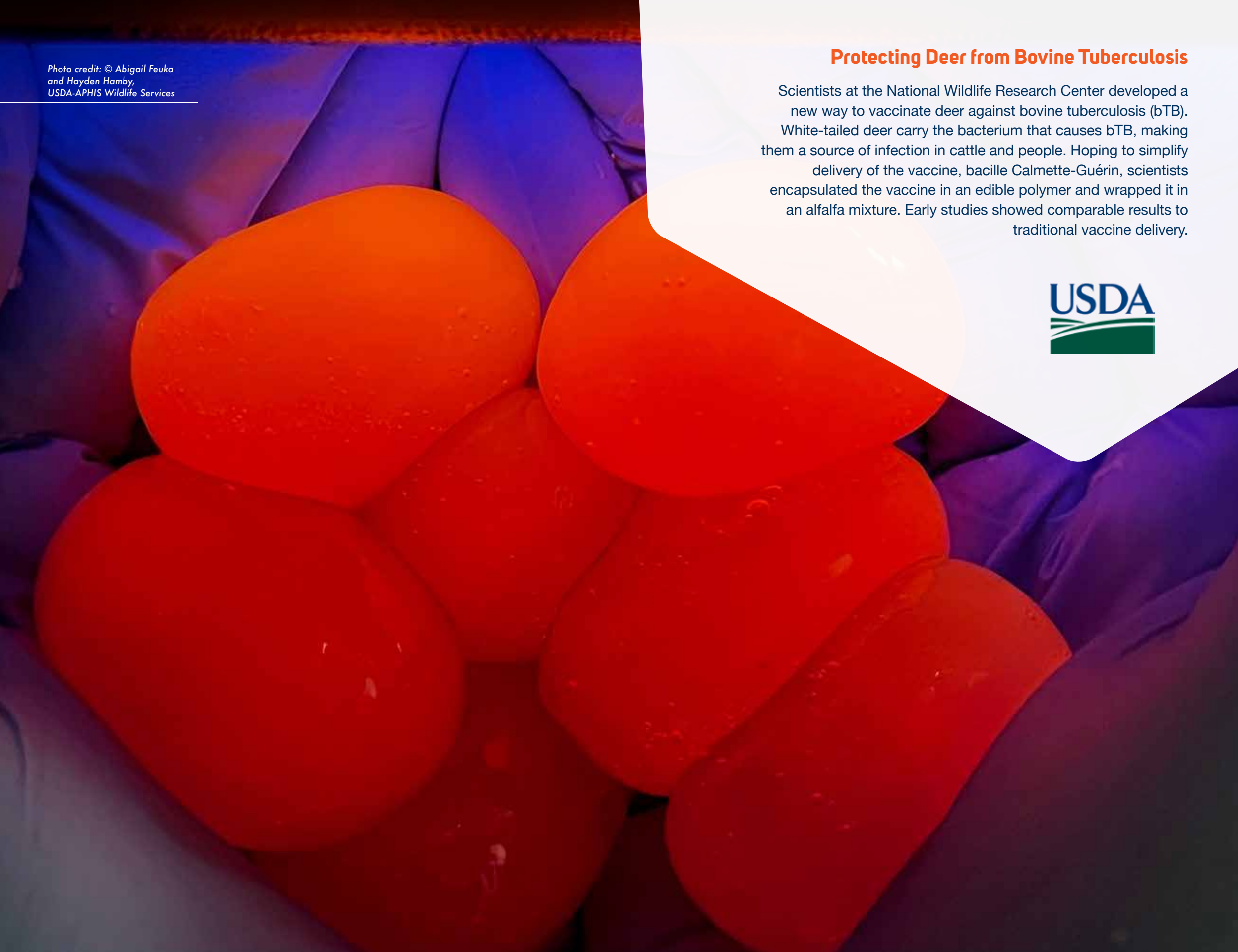


Photo credit: © Abigail Feuka and Hayden Hamby, USDA-APHIS Wildlife Services

Protecting Deer from Bovine Tuberculosis

Scientists at the National Wildlife Research Center developed a new way to vaccinate deer against bovine tuberculosis (bTB). White-tailed deer carry the bacterium that causes bTB, making them a source of infection in cattle and people. Hoping to simplify delivery of the vaccine, bacille Calmette-Guérin, scientists encapsulated the vaccine in an edible polymer and wrapped it in an alfalfa mixture. Early studies showed comparable results to traditional vaccine delivery.

USDA

DECEMBER 2023

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7 Start of Hanukkah	8	9
10	11	12 Anniversary of Bayh-Dole Act	13	14	15	16
17	18	19	20	21	22	23
24 New Year's Eve	25 Christmas	26 Start of Kwanzaa	27	28	29	30
31						

U.S. Department of Agriculture, Animal and Plant Health Inspection Service

National Wildlife Research Center

The National Wildlife Research Center is the research unit of the U.S. Department of Agriculture-Animal and Plant Health Inspection Service's Wildlife Services program. Its mission is to apply scientific expertise to resolve human-wildlife conflicts while maintaining the quality of the environment shared with wildlife. Researchers focus on issues related to agriculture, human health and safety, threatened and endangered species, wildlife disease and invasive species.

NOTES

Toroidal Propeller

MIT Lincoln Laboratory's toroidal propeller allows drones to operate more quietly without sacrificing thrust. Current drones use propeller forms unchanged since the beginning of aviation – but this innovation could accelerate drones' use for many activities, including aerial deliveries, cinematography, infrastructure inspections and agricultural monitoring. The toroidal propeller's design reduces noisy drag and decreases the likelihood of blades striking objects in the drone's path. The drone can also use 3D-printed parts, which are more cost-effective than manufactured alternatives.

LINCOLN LABORATORY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Photo credit: © Glen Cooper/ MIT Lincoln Laboratory

JANUARY 2024

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
31	1 New Year's Day	2	3	4	5	6
7	8	9	10	11	12	13
14	15 Martin Luther King, Jr. Day	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Department of Defense

MIT Lincoln Laboratory

MIT Lincoln Laboratory conducts R&D on a breadth of advanced technologies for critical national security needs. The lab's focus is building operational prototypes of systems and transferring technological solutions to the government and industry. Highly talented staff turn concepts into field-worthy systems with the support of cutting-edge facilities, including a world-class semiconductor laboratory, a flight facility with aircraft customized for testing airborne systems and New England's most powerful supercomputing center.

NOTES

Using Quantum Materials to Improve High-Performance Computing Devices

A team of researchers at the National Security Agency (NSA) Laboratory for Physical Sciences are developing the next generation of high-performance computing (HPC) devices. Using quantum materials, researchers are making technologies that allow HPC devices to operate with less power and greater endurance. In the lab, researchers fabricate the chips at a small scale, measure their properties to ensure effectiveness and determine which prototypes have commercial potential. Industry partners then produce those devices at a larger scale for wide-reaching purposes.

NATIONAL SECURITY AGENCY
TECHNOLOGY TRANSFER PROGRAM
Office of Research & Technology Applications

LPS | LABORATORY FOR PHYSICAL SCIENCES

Photo credit:
© Chuck Robinson/NSA
(main and supporting images)

FEBRUARY

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	31	1	2	3
					Groundhog Day	
4	5	6	7	8	9	10
						Lunar New Year
11	12	13	14	15	16	17
			Valentine's Day			
18	19	20	21	22	23	24
	Presidents' Day					
25	26	27	28	29	1	2
				Leap Day		

Department of Defense, National Security Agency
Laboratory for Physical Sciences

The Laboratory for Physical Sciences partners with the University of Maryland to advance communication, sensing and computer technologies. The NSA Office of Research and Technology Applications (ORTA) establishes partnerships that accelerate mission goals, advance science, foster innovation and promote the growth and commercialization of technology originally created for Agency mission.

NOTES

Photo credit: © Jason Laurea/LLNL

Fusion Ignition: The Hohlraum

The hohlraum is a cylindrical X-ray oven. In December 2022, researchers at Lawrence Livermore National Laboratory (LLNL) National Ignition Facility (NIF) used the hohlraum to achieve ignition, a potentially world-changing breakthrough for fusion energy and a key initial step in the quest for limitless clean energy. In experiments, 192 lasers focused on a capsule suspended inside the hohlraum (left, in circle). LLNL's efforts to help spur development of Inertial Fusion Energy (IFE), a potential source of clean and abundant energy, include sponsoring and participating in IFE-focused workshops.

Lawrence Livermore National Laboratory

MARCH

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
25	26	27	28	29	1	2
3	4	5	6	7	8	9
10 Start of Ramadan Start of Daylight Saving Time	11	12	13	14	15	16
17 St. Patrick's Day	18	19	20	21	22	23
24	25	26	27	28	29	30
Easter Sunday 31						

Department of Energy, National Nuclear Security Administration
Lawrence Livermore National Laboratory

For more than 70 years, Lawrence Livermore National Laboratory has applied science and technology to make the world a safer place. While keeping crucial mission-driven commitments in mind, researchers apply cutting-edge science and technology to achieve breakthroughs in nuclear deterrence, counterterrorism and nonproliferation, defense and intelligence and energy and environmental security.

NOTES

Photo credit: © Chris Morgan/ Idaho National Laboratory (main and supporting images)

Colorimetric Detection of Actinides (CoDeAc)

CoDeAc detects radioactive substances like uranium and plutonium. This technology has enhanced sensitivity and adaptability compared to prior detection tools available in the marketplace. CoDeAc's ease and use of rapid color detection – purple for uranium and pink for plutonium – also make this tool stand out among others. Innovyz USA, a Chicago-based company, licensed the technology from Idaho National Laboratory and created the startup company CoDeAc Solutions to sell it for commercial use in detecting nuclear threats.

INL
Idaho National Laboratory

APRIL

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
31	1	2	3	4	5	6
7	8	9	10	11	12	13
		FLC 2024 National Meeting	Eid al-Fitr			
14	15	16	17	18	19	20
21	22	23	24	25	26	27
	Tax Day Earth Day Start of Passover				World IP Day	
28	29	30	1	2	3	4

Department of Energy

Idaho National Laboratory

Idaho National Laboratory (INL) is home to more than 5,700 researchers and support staff focused on innovations in nuclear research, renewable energy systems and security solutions that are changing the world. From discovering advanced nuclear energy and carbon-free energy options to protecting the nation's most critical infrastructure assets, the talented team at INL is constantly pushing the limits to redefine what's possible.

NOTES

Photo credit: © Reginald Flexen, Riverside National Cemetery

VA | U.S. Department of Veterans Affairs
National Cemetery Administration

Casket Transport and Lowering Device System

The National Cemetery Administration (NCA) honors veterans and their families with burial services. Conventional methods for transporting and lowering caskets into the gravesites require manual lifting, creating substantial risk of injury. With the assistance of the Department of Veterans Affairs Technology Transfer Program, former NCA engineer Cliff Schem developed a patented device to rotate the casket on the transport vehicle, aligning the position of the casket with the gravesite and eliminating manual lifting. This device is in use at the Riverside National Cemetery, our nation's most active cemetery.

MAY

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12 Mother's Day	13	14	15	16	17	18
19	20	21	22	23	24	25 Armed Forces Day
26	27 Memorial Day	28	29	30	31	1

Department of Veterans Affairs
National Cemetery Administration

The NCA has been focused on preserving the memories of America's veterans, service members and families for the last 50 years. The NCA maintains cemeteries as national shrines and oversees memorial programs to honor the service of veterans. More than 4 million Americans, including veterans of every war and conflict, are buried in the VA's national cemeteries.

NOTES

Evaluating Bee Pesticide Exposure from Sunflowers

Scientists in the U.S. Geological Survey (USGS) California Water Science Center's Organic Chemistry Research Laboratory and Pesticide Fate Research Group are assessing pesticide residue levels in sunflower fields to determine the effects pesticides have on honeybee and wild bee populations. Results suggest that a type of pesticide application called neonicotinoid seed treatments, which is commonly used in agricultural production, may negatively impact wild bee health.

USGS
science for a changing world

Photo credit: © Laura Ward

JUNE

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21 Flag Day	22
23 Father's Day	24	25	26 Juneteenth	27	28	29
30						

Department of the Interior,
U.S. Geological Survey

California Water Science Center

The USGS California Water Science Center provides reliable, impartial, foundational data and scientific analysis to address water issues facing California today. Researchers conduct hydrologic monitoring and investigative studies in partnership with tribal, federal, state and local agencies to assist them in managing California's water resources.

NOTES

Photo credit: © Seth Hammond

Argonne NATIONAL LABORATORY

Aurora

The Aurora exascale supercomputer at the Argonne National Laboratory's Argonne Leadership Computing Facility will be one of the most powerful supercomputers in the world when it opens for scientific research. This brand-new class of system has a theoretical peak performance of two exaflops, or 2 billion-billion calculations per second. The red and blue cables of Aurora's liquid-cooling system pump 44,000 gallons of water a day. Its high computing speed and artificial intelligence capabilities will power research in climate, materials science, energy storage, cancer treatment, fusion energy and more.

JULY

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
30	1	2	3	4	5	6
7	8	9	10	11 Independence Day	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Department of Energy
Argonne National Laboratory

The U.S. Department of Energy's Argonne National Laboratory is a multidisciplinary research center located just outside of Chicago. Argonne scientists and engineers tackle the biggest questions facing humanity – from how to obtain affordable clean energy to protecting ourselves and our environment.

NOTES

Beyond Visual Line of Sight (BVLOS) Monitoring

The U.S. Army Combat Capabilities Development Command (DEVCOM) Army Research Laboratory (ARL) developed technology that allows drones to detect, avoid and track power lines by sensing the electric and magnetic fields surrounding high-voltage transmission assets. The lab licensed the patents to Manifold Robotics, whose engineers and experts are creating UAVs for autonomous, beyond visual line of sight (BVLOS) monitoring of utility transmission lines. This is expected to increase efficiency and reduce the cost of monitoring with unmanned, autonomous power line inspections.

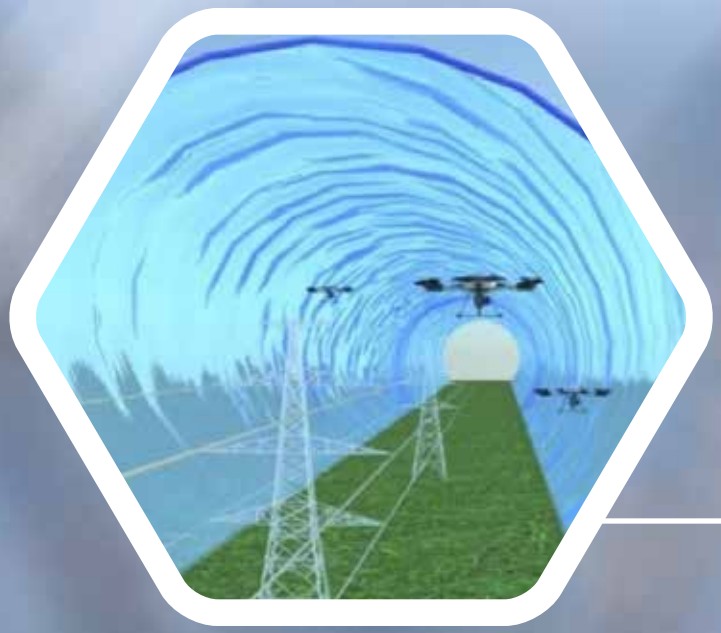


Photo credit: © Manifold Robotics (main and supporting images)

AUGUST

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	31	1	2	3
4	5	6	7	8	9 Anniversary of the CHIPS and Science Act	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 International Dog Day	27	28	29	30	31

Department of Defense, U.S. Army Combat Capabilities Development Command

Army Research Laboratory

DEVCOM ARL, as an integral part of the Army Futures Command, is the Army's foundational research laboratory focused on operationalizing science to ensure overmatch in any future conflict. ARL partners across the national security enterprise to deliver fundamentally advantageous change that is rooted in the creation and exploitation of scientific knowledge and delivered at the speed of relevance.

NOTES

Photo credit: © Kai-Shu Ling, PhD

Helping Farmers Mitigate Emerging Viral Disease in Greenhouse Tomatoes

The U.S. is a major tomato producer, with the crop valued at $2 billion for farmers. However, growers face a major threat in the spread of viral diseases, specifically tomato brown rugose fruit virus in greenhouse tomato production. When the problem was first reported in 2019, USDA researchers began screening and identifying disinfectants to help growers manage a potential viral disease outbreak. By working with regulatory agencies and partner companies, researchers transferred valuable knowledge to growers to mitigate the risk of emerging diseases in the tomato industry.

USDA Agricultural Research Service

SEPTEMBER

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9 Labor Day	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

U.S. Department of Agriculture, Agricultural Research Service

U.S. Vegetable Laboratory

The U.S. Vegetable Laboratory conducts research to solve regional and national problems in the production and protection of vegetable crops. The laboratory's mission is to improve genetic populations of vegetable crops by combining resistance to diseases and pests with favored quality characters and improved yield potentials and to develop knowledge on disease and pest biology, ecology and epidemiology as a basis for developing integrated management systems.

NOTES

Photo credit: © David Woodfin, Angelique Johnson, Allen Hopkins, Los Alamos National Laboratory

Low-Cost, High-Performance Scalable Optoelectronics

Researchers at Los Alamos National Laboratory developed a patented technology called Solution-processed Perovskite Crystalline films (SPeC) that can make more efficient solar cells, brighter and fully color-tunable light-emitting diodes (LEDs) and more sensitive x-ray detectors. SPeC costs less and uses much less energy than current approaches, and the films produce fewer defects than other semiconductor fabrication methods create. Companies have evaluated samples through the Small Business Innovation Research (SBIR) Program.

Los Alamos NATIONAL LABORATORY

U.S. DEPARTMENT OF ENERGY

NNSA National Nuclear Security Administration

Photo credit: David Woodfin and Allen Hopkins, Los Alamos National Laboratory

OCTOBER

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

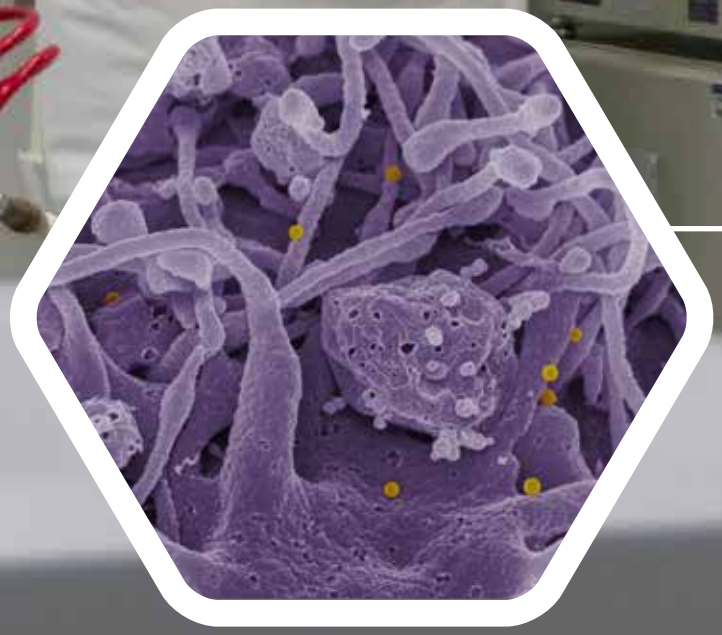
SUN	MON	TUE	WED	THU	FRI	SAT
29	30	1 Start of Federal Fiscal Year	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 Columbus Day Indigenous Peoples' Day	22	23	24	25	26
27 Anniversary of Federal Technology Transfer Act	28 Anniversary of Stevenson-Wydler Act	29	30	31 Start of Diwali Halloween	1	2

Department of Energy, National Nuclear Security Administration
Los Alamos National Laboratory

Los Alamos National Laboratory, a multidisciplinary research institution engaged in strategic science on behalf of national security, is managed by Triad, a public service-oriented national security science organization. Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction and solving problems related to energy, environment, infrastructure, health and global security concerns.

NOTES

Photo credit: © NIAID
(main and supporting images)



National Institute of Allergy and Infectious Diseases

Self-Amplifying RNA Vaccine for Crimean-Congo Hemorrhagic Fever Virus

Crimean-Congo hemorrhagic fever virus (CCHFV) causes fatal hemorrhagic disease in up to 30% of infected people and previously had no approved treatment or vaccine. National Institute of Allergy and Infectious Diseases (NIAID) scientists collaborated with HDT Bio to develop a CCHFV vaccine, using HDT Bio's self-amplifying RNA platform to present the virus proteins to the immune system. With funding from the Department of Defense, NIAID is collaborating with HDT Bio and the University of Texas Medical Branch to perform a clinical trial of the vaccine.

NOVEMBER

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
27	28	29	30	31	1	2
3 End of Daylight Saving Time	4	5 Election Day	6	7	8	9
10	11 Veterans Day	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28 Thanksgiving	29	30

Department of Health and Human Services, National Institutes of Health

National Institute of Allergy and Infectious Diseases

The Laboratory of Virology in NIAID's Division of Intramural Research Rocky Mountain Laboratories conducts innovative scientific research on viral pathogens requiring high or maximum containment. These pathogens include filoviruses (e.g., Ebola virus), bunyaviruses (e.g., CCHFV), arenaviruses (e.g., Lassa virus) and flaviviruses (e.g., Dengue virus). A significant goal is to develop diagnostics, vaccines and therapeutics against these agents.

NOTES

Photo credit: © Aeriel Blaise-Storey

Colorimetric Sensing

The U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center scientists have developed fabrics and other materials that can detect and even remove a wide variety of toxic substances based on colorimetric changes visible in the fabric itself. This technology can be applied to wearable chemical sensors and chemical detection devices or used in respirators and collective protection filters. This technology has benefited warfighters and first responders in its commercial applications and has been the subject of numerous patent license agreements.

DECEMBER

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19 Anniversary of Bayh-Dole Act	20	21
22	23	24	25 Start of Hanukkah Christmas	26 Start of Kwanzaa	27	28
29	30	31 New Year's Eve	1	2	3	4

Department of Defense, U.S. Army Combat Capabilities Development Command

Chemical Biological Center

The Department of Defense (DoD) DEVCOM Chemical Biological Center is the Army's primary DoD technical organization for non-medical chemical and biological defense. It possesses an unrivaled chemical biological research and development infrastructure with locations at four research campuses around the U.S. It is aligned under the U.S. Army Futures Command, which supports U.S. forces with overmatch in future operational environments.

NOTES

Photo credit: © Art Howard / U.S. Army Corps of Engineers

Understanding the Climate Effects of Atmosphere, Ice and Ocean Interactions

A patented ice mass balance buoy that monitors changes in ice thickness is embedded into multiyear ice in the Alaskan Beaufort Sea by researchers from the U.S. Army Engineer Research and Development Center's (ERDC) Cold Regions Research and Engineering Laboratory (CRREL). The buoy was used to capture data such as air temperature, barometric pressure and GPS position to understand the interaction between sea ice dynamics and the Arctic climate. The data had a direct impact on climate change research and the development of accurate atmosphere-ice-ocean interaction models.

CRREL COLD REGIONS RESEARCH AND ENGINEERING LABORATORY

ERDC ENGINEER RESEARCH & DEVELOPMENT CENTER

JANUARY 2025

FLC
Federal Laboratory Consortium for Technology Transfer

@federallabs

SUN	MON	TUE	WED	THU	FRI	SAT
29	30	31	1	2	3	4
			New Year's Day			
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
	Martin Luther King, Jr. Day					
26	27	28	29	30	31	1

Department of Defense, Engineer Research & Development Center

Cold Regions Research and Engineering Laboratory

The U.S. Army Corps of Engineers ERDC CRREL develops and delivers transformative technical solutions that meet operational challenges in extreme and complex environments. Focusing on mission-essential research, CRREL is a recognized expert in producing high-impact engineering innovations while highlighting the contribution of ecological and physical sciences. CRREL's successful advancements ensure sustainable operations for military and civil operations.

NOTES

LAB TECH EXTRAS

Pocket Detection Pouch

The Pocket Detection Pouch is a device the size of a credit card that detects multiple Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) threats and delivers fast, easily readable results. A sample of the suspicious material is placed within the clear pouch and squeezed down multiple channels, each containing a different rapid colorimetric test at the bottom. Developed by the U.S. Army Combat Capabilities Development Command Chemical Biological Center, this device is now the subject of a Cooperative Research and Development Agreement with the company IndyGeneUS for commercial development.

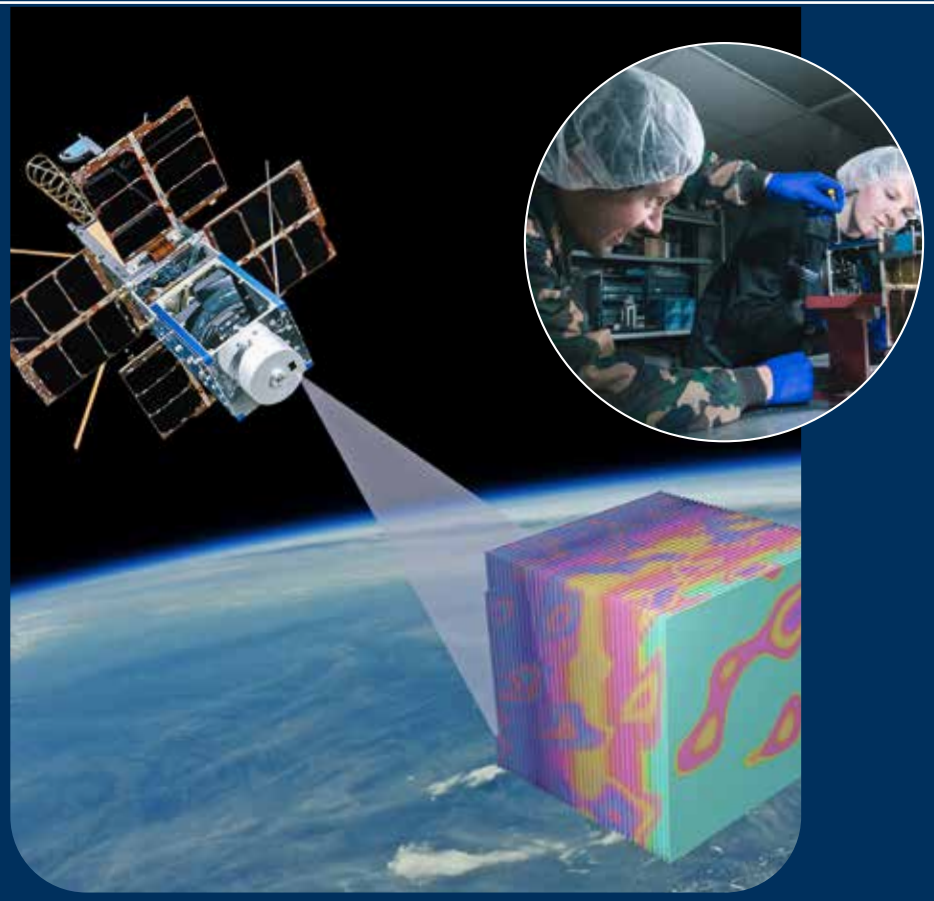
Photo credit: U.S. Army, Jack Bunja

Nano-Satellite Atmospheric Chemistry Hyperspectral Observation System (NACHOS)

NACHOS analyzes a broad spectrum of light to detect small amounts of gases in the atmosphere and processes that data while in orbit to identify sources of harmful gases on Earth. The miniature satellite design is more than 50 times smaller and lighter than existing technologies, and it uses 10 times less power. NACHOS offers capabilities for space-based, airborne and ground-based mission deployment, including on CubeSats (cube-shaped satellites), deep-space planetary missions, remote-monitoring ground stations and airborne monitoring from drones. Two NACHOS systems have flown in space.

Photo credit (main image): © David Woodfin, Jacob Hassett, Allen Hopkins, Los Alamos National Laboratory

Photo credit (supporting image): © David Woodfin and Allen Hopkins, Los Alamos National Laboratory



Measuring Waves Beneath the Ice

Researchers at the U.S. Army Engineer Research and Development Center's Cold Regions Research and Engineering Laboratory (CRREL) cut through the icy surface of the Ross Sea in Antarctica. The team placed a buoy to measure waves passing within the marginal ice zone, the area stretching between thick ice and the rolling ocean. CRREL's two-month project was essential in contributing to studies of the sea ice, ocean, snow cover and atmospheric properties during rapid sea ice growth as well as an improved understanding of climate change.

Photo credit: © Julie Parno / ERDC Cold Regions Research and Engineering Laboratory

Human Powered Submarines

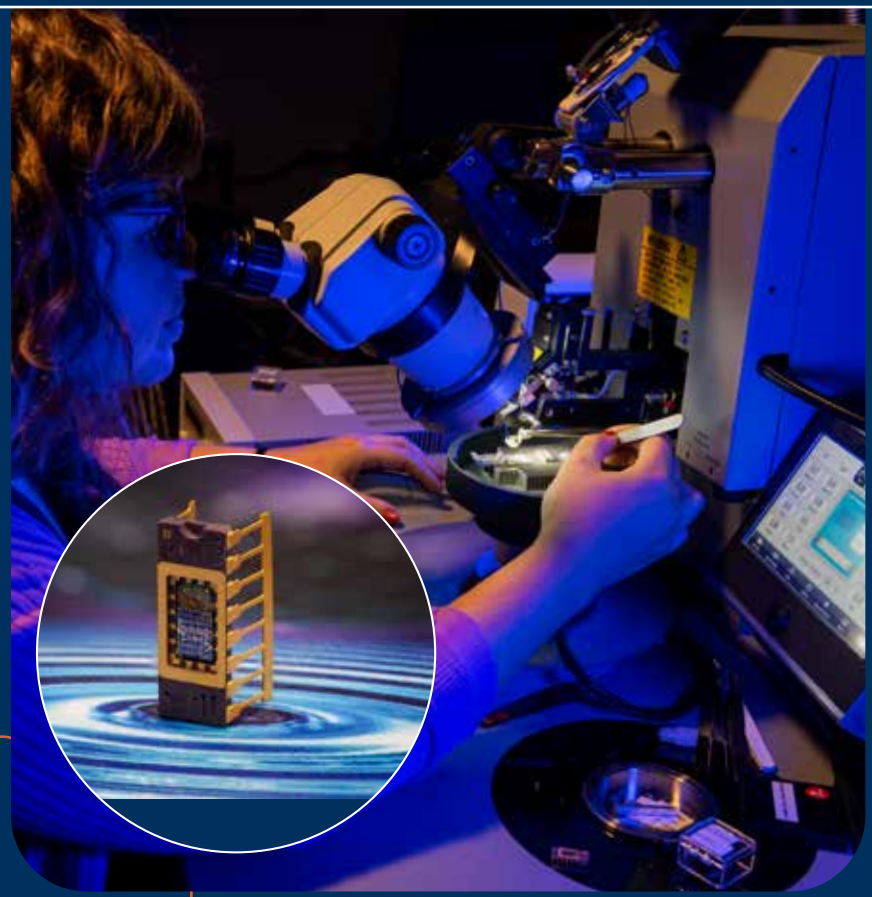
International Submarine Race (ISR) contestants prepare their human-powered subs for their first trial runs at Naval Surface Warfare Center, Carderock Division. ISR is a biennial science, technology, engineering and mathematics (STEM) event that allows students to display their talents and problem-solving capabilities in submarine and hull design challenges. Carderock interacts with select schools via Educational Partnership Agreements and has a successful history of attracting new employees because of their participation in the ISR.

Photo credit: © Devin Pisner

Night Vision Devices

Night vision devices (NVDs) are vital for emergency responders in low- and no-light conditions. The National Urban Security Technology Laboratory, through its System Assessment and Validation for Emergency Responders (SAVER) program, assessed six commercially available NVDs to help agencies make informed purchasing decisions based on criteria including image clarity, mount capability and ease of use. During four consecutive winter nights, a group of law enforcement officers performed simulated activities for search and rescue, surveillance, mass transit patrol and special weapons and tactics.

Photo credit: Department of Homeland Security Science and Technology Directorate's National Urban Security Technology Laboratory and U.S. Army Combat Capabilities Development Command



Making Wire Bond Connections

National Security Agency researchers are developing next-generation memory devices using quantum materials. This process involves making electrical connections to the microscopic devices by using a wire bonder to connect thin gold wires — one-thousandth of an inch thick — to chips. These connections allow researchers to measure the magnetic and electrical behavior of the device to ensure it will work in its final application: high-performance computers. The end goal is to replace standard computers with these more efficient, non-volatile chips.

Photos credit (main image): © Chuck Robinson/NSA
Photo credit (supporting image): Chuck Robinson/NSA

THANK YOU

to all of the federal laboratories that submitted photos of their innovative technologies. Your participation helps the T2 community thrive!

LABORATORY DIRECTORY

December '23
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
National Wildlife Research Center

January '24
Department of Defense
MIT Lincoln Laboratory

February
Department of Defense
National Security Agency
Laboratory for Physical Sciences

March
Department of Energy
National Nuclear Security Administration
Lawrence Livermore National Laboratory

April
Department of Energy
Idaho National Laboratory

May
Department of Veterans Affairs
National Cemetery Administration

June
Department of the Interior
U.S. Geological Survey
California Water Science Center

July
Department of Energy
Argonne National Laboratory

August
Department of Defense
U.S. Army Combat Capabilities Development Command
Army Research Laboratory

September
U.S. Department of Agriculture
Agricultural Research Service
U.S. Vegetable Laboratory

October
Department of Energy
National Nuclear Security Administration
Los Alamos National Laboratory

November
Department of Health and Human Services
National Institutes of Health
National Institute of Allergy and Infectious Diseases

December
Department of Defense
U.S. Army Combat Capabilities Development Command
Chemical Biological Center

January '25
Department of Defense
Engineer Research & Development Center
Cold Regions Research and Engineering Laboratory

Lab Tech Extras

Department of Energy
National Nuclear Security Administration
Los Alamos National Laboratory

Department of Defense
U.S. Army Combat Capabilities Development Command
Chemical Biological Center

Department of Defense
Engineer Research & Development Center
Cold Regions Research and Engineering Laboratory

Department of Defense
National Security Agency
Office of Research and Technology Applications

Department of Defense
U.S. Navy, Naval Sea Systems Command
Naval Surface Warfare Center Carderock Division

U.S. Department of Homeland Security
Science and Technology Directorate
National Urban Security Technology Laboratory

FLC

Federal Laboratory Consortium
for Technology Transfer

@federallabs FEDERALLABS.ORG

Judges

Annie Bullock-Yoder
Arnett Wayne Strickland
Benjamin Recchie
Charlotte Eng
Derek Parks
Janet Mercer-Smith
Jennifer Plante
John Rein
Lydia Hierl
Marianne Lynch
Michael Pollack
Mira Isabella Deni
Suzanne Frisbie
Victoria Brun
Whitney Hastings