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GENTLE.NEWS

In Today's Edition

"And then he gives me a smile that just seems so genuinely sweet with just the right touch of shyness that unexpected warmth rushes through me."

— Suzanne Collins

NASA Pushes New Wing Design to Find Structural Limits

3 Min Read NASA Pushes New Wing Design to Find Structural Limits The 15-foot Structural Wing Experiment Evaluating Truss-bracing test article is fully installed in the Flight Loads Laboratory at NASA's Armstrong Flight Research Center in Edwards, California, on Wednesday, May 20, 2026. The model is part of NASA's research to develop technologies for future ultra-efficient aircraft. Credits: NASA/Carla Escamilla NASA researchers recently put a new wing design, appearing long and thin with a lightweight structural design, through a series of grueling tests to find its structural limits. What they found left them encouraged about the wing's potential, even when they pushed it past its intended limits. The 15-foot Structural Wing Experiment Evaluating Truss-bracing (SWEET-15) test article is part of NASA's research to develop future ultra-efficient aircraft. The design incorporates a long wing supported by an aerodynamic strut, based on NASA's earlier Transonic Truss-Braced Wing concept. The research team is working to understand whether SWEET-15's design and its new lightweight structural designs could help commercial airliners save fuel. But first, they need to understand how it behaves under the kinds of force wings experience in flight. Lab technicians Phil Tofts, Chris McLain, and Jeff Howell and NASA engineers Erin Anderson and Richard Larson prepare the 15-foot Structural Wing Experiment Evaluating Truss-bracing model in the Flight Loads

Laboratory at NASA's Armstrong Flight Research Center in Edwards, California, on Thursday, Dec. 11, 2025. The model is part of NASA's research to develop technologies for future ultra-efficient aircraft. NASA/ Christopher LC Clark The SWEET-15 design originated with combining five different advanced composite manufacturing and assembly technologies that enabled the novel structural design. The 15-foot-long test article was then designed and fabricated at NASA's Langley Research Center in Hampton, Virginia, before traveling to NASA's Armstrong Flight Research Center in Edwards, California, for testing. Over several months, NASA engineers intentionally bent the test wing in the Flight Loads Laboratory at NASA Armstrong. Numerous strain and load sensors, including fiber-optic strain sensors, were placed throughout the structure to track how the wing responded as forces increased. The data from the sensors confirmed the predictions made by NASA's computer models. According to initial findings, the wing withstood the anticipated in-flight forces without issue. The results provided the team with confidence in the new manufacturing approaches and methods for connecting wing parts used in SWEET-15, which could support future efficient aircraft designs. The manufacturing approach, developed at NASA Langley used the Integrated Structural Assembly of Advanced Composites robot, aims to produce lighter and stronger composite structures for aerospace vehicles. Lab technicians Jeff Howell, left and Chris Mount install the 15-foot Structural Wing Experiment Evaluating Truss-bracing model in the Flight Loads Lab at NASA's Armstrong Flight Research Center in Edwards, California, Wednesday, February 11, 2026. The model is part of NASA's research to develop technologies for future ultra-efficient aircraft. NASA/Christopher LC Clark The test concluded with a deliberate test-to-failure, where engineers increased loads beyond the wing's design limits to determine how and where it would fail. The structure ultimately failed at roughly 127% of its design limit load, with visible damage appearing near the back edge of the wing and in the upper wing cover. This element of testing provided valuable insight into how the joints connecting the wing to its main strut and a secondary one, called a jury strut, behave under forces beyond the expected flight envelope. This marks the first time a representative composite truss-braced wing configuration has undergone this type of structural evaluation. It was made possible only through NASA collaboration across centers and projects, with researchers utilizing agency resources such as the Fiber Optic Sensing System developed to gather data on both aircraft and spacecraft. NASA research engineer Walter Hargis regulates the 15-foot Structural Wing Experiment Evaluating Truss-bracing model in the Flight Loads Laboratory at NASA's Armstrong Flight Research Center in Edwards, California, on Tuesday, March 31, 2026. The model is part of NASA's research to develop technologies for future ultra-efficient aircraft. NASA/Ryan Kline To prepare for the testing, engineers at NASA Langley designed, analyzed, and manufactured the wing and completed safety preparations and lab setup. Researchers will now analyze the data collected during testing to inform future airframe designs and support NASA's ongoing efforts to develop more efficient aviation

Source: NASA

technologies. The work is being conducted through NASA’s Subsonic Flight Demonstrator project in the agency’s Research Technology Mission Directorate. The successful testing of multiple innovative components marks a milestone in NASA’s aeronautics research. To learn more, visit: https://www.nasa.gov/aeronautics/ Share Details Last Updated Jul 17, 2026 Editor Dede Dinius Contact Sarah Mann sarah.mann@nasa.gov Location Armstrong Flight Research Center Related Terms Armstrong Flight Research Center Advanced Air Vehicles Program Aeronautics Aeronautics Research Mission Directorate Langley Research Center Subsonic Flight Demonstrator Subsonic Vehicle Technologies and Tools Explore More 4 min read NASA Uses Subscale Aircraft to Accelerate Flight Innovation Article 2 days ago 3 min read NASA Study Points to Smoother Air Taxi Rides Article 4 days ago 3 min read A Day of Flight Testing at NASA Armstrong Article 3 weeks ago Keep Exploring Discover More Topics From NASA Armstrong Flight Research Center Aeronautics Green Aviation Tech NASA Aircraft

Source: NASA

Faster aging in younger people tied to rise in early-onset cancer

A new study suggests that younger generations are aging biologically faster than their older counterparts. This faster biological aging was also linked to early-onset cancers. Cancer is often considered a disease of aging. Older adults are at higher risk because they have had more time to accumulate cellular damage that can trigger tumor formation. But as cancer rates in younger adults rise, with each successive generation facing higher risks than the one before it, researchers are asking whether cellular damage is accumulating faster in recent generations, accelerating their body's biological aging. The new study led by researchers at Washington University School of Medicine in St. Louis provides evidence that younger generations are indeed aging faster biologically than their older counterparts. The causes remain under investigation around the world, including global efforts led by research members of Siteman Cancer Center, based at Barnes-Jewish Hospital and WashU Medicine, and Cancer Grand Challenges, a global initiative co-founded by the National Cancer Institute and Cancer Research UK; but importantly, the new research links this accelerated aging to an increased risk of early-onset cancers in younger generations. In general, early-onset cancers are those diagnosed at age 55 or younger. The larger the gap between biological age—that is, how old our bodies appear to be—and chronological age—which is how many years we have actually lived—the higher the cancer risk, according

Source: Futurity.org

to the researchers. They found that people in more recent birth cohorts had larger age gaps than those in older birth cohorts, which may help explain the rise in early-onset cancer in recent generations. Their study also identified links between faster aging in particular organ systems and increased risks for certain cancers. For instance, an immune system that appears older than its actual age was associated with early-onset lung cancer. Similarly, fat tissue that appears older than its chronological age was associated with early-onset colorectal cancer. The study in the journal Nature Medicine suggests that measures of accelerated aging could help identify individuals at higher risk of early-onset cancer and guide new strategies for cancer prevention and early detection. “Our ultimate goal is to decode how modern environments become biologically embedded to drive cancer risk, transforming prevention from broad recommendations to personalized interventions,” says Yin Cao, a molecular epidemiologist and an associate professor of surgery and of medicine at WashU Medicine. “This brings us closer to identifying risk earlier and developing prevention strategies that are tailored to an individual’s biology.” Cao’s team has been at the forefront of identifying individual factors that influence cancer risk across the life course, such as obesity, metabolic dysregulation, alcohol consumption, sedentary behavior, poor diet quality, and cesarean delivery. Although these discoveries have revealed important clues to the origins of cancer at younger ages, the contribution of any single factor is modest. With that in mind, Cao, also a research member of Siteman, and her colleagues have sought ways to capture the influence of multiple risk factors operating together to spur cancer development. With support from Cancer Grand Challenges, Cao, as co-lead of Team PROSPECT, has been able to go after this problem. For the current study, Cao's team analyzed data from more than 154,000 young adults in the UK Biobank, a large biomedical dataset containing biological, health and lifestyle data, and from more than 10,000 individuals in the U.S. participating in the National Institutes of Health's (NIH) All of Us Research Program, an effort to build a comprehensive health dataset on more than 1 million people living in the US. To estimate the level of biological aging—or age gap—the researchers, including first author Ruiyi Tian, a doctoral student in the Cao lab, examined aging at two levels: across the body as a whole, known as systemic aging, and within individual organs, known as organ-specific aging. For systemic aging, the researchers used established measures, including clinical biomarker-based measures such as PhenoAge and the Klemera-Doubal Method, as well as a metabolomic age score, which provides a measure of individual metabolism. PhenoAge, for example, measures nine blood biochemistry markers such as albumin, made by the liver, and creatinine, a waste product removed by the kidneys. For organ-specific aging, the researchers used blood proteomic data, which measure levels of multiple proteins linked to specific organ systems, to estimate biological aging in individual organs. The researchers calculated the average age gap for each birth cohort and used standard deviation to describe how much each group differed from the study average. Standard deviation is a measure of how spread out data points are around the average. The researchers found that individuals in the UK born between 1965 and 1974 had systemic aging that was 23% of one standard deviation higher compared with those born between 1950 and 1954, after accounting for chronological age. In other words, people in the younger birth cohort showed a modest shift toward older biological profiles than people in the older birth cohort when at the same chronological age. The researchers observed a similar pattern in the US cohort. Participants born between 1990 and 1999 had systemic aging that was 92% of one standard deviation higher compared with those born between 1965 and 1969. This increased systemic aging in the younger group was associated with an 8% increased risk of early-onset solid cancers, especially lung, gastrointestinal and uterine cancers. When participants were divided into three groups based on their level of systemic aging, those with the most advanced systemic aging had a 15% increased risk of early-onset solid cancer compared with those with the least advanced systemic aging. According to the analysis, the increased risk persisted even after controlling for inherited genetic risks of cancer and genetic susceptibility to accelerated aging. By zooming into organ-specific aging, the researchers found that advanced immune system aging was associated with increased risk of early-onset lung cancer, and advanced adipose (fat) tissue aging was associated with increased risk of early-onset colorectal cancer. “If we can identify younger people with the highest cancer risk when they are still healthy, we can focus on prevention and early-detection strategies for the individuals who will benefit most from early interventions,” Cao says. This research is part of Team PROSPECT, a Cancer Grand Challenges team co-led by Cao. Cancer Grand Challenges is a global research funding initiative co-founded by Cancer Research UK and the National Cancer Institute (NCI) that brings together world-leading researchers to take on cancer's toughest challenges. "Right now, we don't have a definitive answer to what's driving the rise of early-onset cancers around the world, but studies like this are helping us piece together the bigger picture, showing that cancer may be influenced not just by changes inside individual cells, but by wider changes happening across the body as a whole," says David Scott, director of Cancer Grand Challenges. "Research on this scale is possible through Cancer Grand Challenges, which brings together scientists from different fields around the world to tackle these complex questions together." Cao and her colleagues are leading efforts to transform the understanding of why cancers are increasingly striking younger generations. Their next frontier is to decipher how environmental, lifestyle and societal changes leave lasting biological imprints, including accelerated aging and other markers of heightened susceptibility. By illuminating the pathways through which risk accumulates across the life course, they seek to uncover the origins of early-onset cancers and redefine opportunities for prevention. In parallel, their work will enable more precise approaches to identify those at greatest risk and intervene earlier, shifting the paradigm from reacting to disease to preventing it before it begins. This work was part of the PROSPECT team supported by the Cancer Grand Challenges initiative funded by Cancer Research UK; the National Cancer Institute of the NIH; the French National Cancer Institute; and the Bowelbabe Fund for Cancer Research UK. The project was also supported by grants from NIH/National Cancer Institute; the NIH/National Institute of Diabetes and Digestive and Kidney Diseases; and the Alvin J. Siteman Cancer Center through the Foundation for Barnes-Jewish Hospital. Further support was provided by a pre-doctoral fellowship in the Cancer Biology pathway supported by NIH Molecular Oncology Training Grant T32CA113275 to Washington University School of Medicine in St. Louis; the Pediatric Gastroenterology Research Training Program grant T32DK077653 to Washington University School of Medicine in St. Louis; the Washington University School of Medicine in St. Louis Institute of Clinical and Translational Sciences, grant number UL1TR002345; and the Foundation for Barnes-Jewish Hospital. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH. Source: Washington University in St. Louis The post Faster aging in younger people tied to rise in early-onset cancer appeared first on Futurity .

Photo & Video Chronology — Kīlauea summit episode 51

Photo & Video Chronology — Kīlauea summit episode 51 By Hawaiian Volcano Observatory July 15, 2026 Episode 51 of lava fountaining in Halemaʻumaʻu began at the summit of Kīlauea began at 8:30 a.m. HST on July 15, 2026. Media Sources/Usage: Public Domain. View Media Details A view of the lava fountain erupting from the north vent during episode 51 on July 15, 2026. Fountain heights reached up to about 950 feet (290 meters) and effusion rates reached a peak of about 400 cubic yards per second (300 cubic meters per second) at 10:30 a.m. HST July 15. This photo was taken shortly afterward, at around 11 a.m. HST. USGS photo by K. Mulliken. Media Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halemaʻumaʻu at the summit of Kīlauea began at about 8:30 a.m. HST on July 15, 2026. This photograph, taken around 11 a.m. from the caldera rim near Kilauea Military Camp, shows the fan-shape of the fountain that developed as the episode progressed. USGS photo by K. Mulliken. Media Sources/Usage: Public Domain. View Media Details Lava falling from the north vent fountain during episode 51 in Halemaʻumaʻu on July 15, 2026, feeds a lava flow in the crater. USGS photo by K. Mulliken. Media Sources/Usage: Public Domain. View Media Details During episode 51 of lava fountaining on July 15, 2026, the fountain from the north vent falling on the back side of the cone accumulated into a channelized lava flow that moved eastward on the crater floor away from the vent complex. USGS photo by K. Mulliken. Media Sources/Usage: Public Domain. View Media Details On July 15, Kīlauea summit eruption episode 51 lava fountains were a sight to behold from Uēkahuna overlook in Hawai‘i Volcanoes National Park. Large crowds gathered to watch lava fountains from the Halema‘uma‘u north vent, along with flows on the crater floor. Light tephra fell at Uēkahuna between 10:30 a.m. and 12:00 p.m. HST, depositing Pele's hair on park visitors' shirts and hats. USGS photo by M. Zoeller. Media Sources/Usage: Public Domain. View Media Details Halema‘uma‘u north vent lava fountains were reaching about 150 meters (500 feet) in height when a USGS Hawaiian Volcano Observatory geologist snapped this photo from Uēkahuna overlook around 11:45 a.m. HST on July 15 during episode 51. Tephra was lofting even higher in the eruptive plume, then falling on areas from Nāmakanipaio campground to the Footprints trailhead in Hawai‘i Volcanoes National Park. USGS photo by M. Zoeller. Media Sources/ Usage: Public Domain. View Media Details The episode 51 lava fountain as seen from Uēkahuna in Hawai‘i Volcanoes National Park. The lava fountain at this time was approximately 500 feet (150 meters) tall and feeding a lava flows across the crater floor. The U.S. Geological Survey Hawaiian Volcano Observatory monitoring stations, including the V1 livestreaming camera, as well as the KW camera and F1 thermal camera can be seen in the foreground along the caldera rim. USGS photo by D. Downs. Download Video Sources/Usage: Public Domain. View Media Details Timelapse video of episode 51 of lava fountaining in Halema‘uma‘u at the summit of Kīlauea that took place for about 8 hours on July 15, 2026. This video of the episode was taken by the B1cam, located on the south rim of the summit caldera in Hawai‘i Volcanoes National Park. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halema‘uma‘u at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This timelapse video of the episode was taken by the S4cam, located on the south rim of the summit caldera in Hawai‘i Volcanoes National Park. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halema‘uma‘u at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This timelapse video of the episode was taken by the K2cam, located near Uēkahuna bluff in Hawai‘i Volcanoes National Park, and shows visitors viewing the eruption. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halema‘uma‘u at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This photograph of the episode was taken by the V1cam, located on the northwest rim of the crater in Hawai‘i Volcanoes National Park. The camera is a pan-tilt-zoom model so the perspective changes several times during the timelapse video. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halema‘uma‘u at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This timelapse video of the episode was taken by the KWcam, located on the northwest rim of the caldera in Hawaiʻi Volcanoes National Park. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halemaʻumaʻu at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This timelapse video of the episode was taken by the V2cam, located on the easter rim of the crater in Hawaiʻi Volcanoes National Park. The camera is a pan-tilt-zoom model so the perspective changes several times during the timelapse video. USGS webcam video. Download Video Sources/Usage: Public Domain. View Media Details Episode 51 of lava fountaining in Halemaʻumaʻu at the summit of Kīlauea took place for about 8 hours on July 15, 2026. This timelapse video of the episode was taken by the V3cam, located on the southern rim of the crater in Hawaiʻi Volcanoes National Park. The camera is a pan-tilt-zoom model so the perspective changes several times during the timelapse video. USGS webcam video.

Source: U.S. Geological Survey

U.S. Fish and Wildlife Service Finalizes Rule Downlisting the Razorback Sucker

Press Release U.S. Fish and Wildlife Service Finalizes Rule Downlisting the Razorback Sucker This recovery milestone reflects more than 30 years of collaborative conservation across basin-wide recovery programs and partners. Jul 16, 2026 DENVER – The U.S. Fish and Wildlife Service has finalized a rule downlisting the razorback sucker from an endangered to a threatened species under the Endangered Species Act. The action is accompanied by a 4(d) rule that allows limited take of the fish for actions associated with the species' conservation. Listed as endangered in 1991, the razorback sucker is one of the largest suckers in North America. It is a unique freshwater fish native to warm-water portions of the Colorado River basin in the western United States. Recognizable by a bony keel behind its head, the razorback sucker can grow to more than three feet long and weigh up to ten pounds. The fish tolerates wide-ranging temperatures and flow conditions and is most common in low-velocity habitats such as backwaters, floodplains, flatwater river reaches, and reservoirs. It is found in Arizona, California, Colorado, Nevada, New Mexico, and Utah. Historically it was also found in Wyoming and the Mexican states of Baja and Sonora. This recovery milestone is the result of more than three decades of cooperative work among the Upper Colorado River Endangered Fish Recovery Program, San Juan River Basin Recovery Imple-

Source: U.S. Fish & Wildlife Service

mentation Program, and Lower Colorado River Multi-Species Conservation Program. It also reflects the contributions of many partners at state, regional, tribal, and federal organizations, as well as the private and nonprofit sectors. Conservation measures, such as propagation and stocking, nonnative fish control, instream flow, research and monitoring, and habitat restoration, have improved conditions in many areas of the Colorado River basin that have historically supported populations. Razorback suckers are now found in eight populations; four of those populations can migrate and spawn in multiple locations. The largest population, located in the Green River of the upper Colorado River basin, now includes about 36,000 adults, up from roughly 100 wild fish in the late 1990s. The accompanying final rule under section 4(d) of the ESA provides tailored protections for the razorback sucker and regulatory flexibility for activities associated with its conservation. Activities covered by the 4(d) rule include maintenance of refuge populations, exhibition for educational purposes, creation of nursery habitats, removal of nonnative fish and development of catch-and-release fishing opportunities. Despite the substantial progress, the razorback sucker faces several challenges in the foreseeable future and remains threatened under the Act. Ongoing threats to the species include altered river flows that limit nursery habitat, changes in water quality and quantity, persistent drought, and predation by nonnative species. The final rule will publish in the Federal Register on July 17 at www.federalregister.gov . The proposed and final rules, post-delisting monitoring plan, supporting documents and public comments are

Source: U.S. Fish & Wildlife Service

available at https://www.regulations.gov under docket number FWS–R6–ES–2020–0057. Photos of razorback sucker: https://flic.kr/s/aHsmP4hT-DB ## The U.S. Fish and Wildlife Service works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. For more information, visit www.fws.gov and connect with us on social media: Facebook , Instagram , X , LinkedIn , Flickr , and YouTube . Press Release Published Jul 16, 2026 Endangered Species Act Latest Press Releases U.S. Fish and Wildlife Service to Downlist Ae‘o Jul 16, 2026 Endangered Species Act Secretary Burgum Returns Management of Grizzly Bears to the West Jul 15, 2026 National Elk Refuge Confirms Second Chronic Wasting Disease Case Jul 15, 2026

New Innovation Crossroads cohort tackles DOE's toughest technology challenges

Program connects founders with ORNL expertise to help launch companies addressing national energy and technology priorities Published: July 17, 2026 Updated: July 17, 2026 Six entrepreneurs have been selected for the next cohort of Innovation Crossroads, a Department of Energy Lab-Embedded Entrepreneurship Program node (LEEP) based at Oak Ridge National Laboratory (ORNL). The program provides energy-related startup founders from across the nation with access to ORNL's researchers, facilities and technical expertise, as well as connect them with experts, mentors and networks to accelerate their efforts to take their promising ideas to the marketplace. "Through Innovation Crossroads, ORNL plays a critical role in nurturing early-stage energy and manufacturing startups, catalyzing for innovation and collaboration," said Susan Hubbard, ORNL deputy for science and technology. "By providing access to ORNL's cutting-edge resources, expertise, and advanced facilities, we can accelerate advancements in energy and emerging technologies that increase U.S. economic competitiveness and regional economic development." Program strengthens startup ecosystem and advances technologies essential to U.S. competitiveness Since its launch in 2015, LEEP has supported 239 fellows and helped launch more than 200 startups that have attracted more than $6 billion in follow-on funding and created nearly

Source: Oak Ridge National Laboratory

4,000 jobs. LEEP-supported startups have achieved a 92 percent success rate, far exceeding the typical survival rate for hard-tech startups. This year's cohort is the first since the Office of Technology Commercialization (OTC) began managing the program. "Successful startups do more than bring new technologies to market — they create high-quality jobs, strengthen domestic supply chains and help build a more competitive American economy," said Anthony Pugliese, DOE Chief Commercialization Officer and Director of the Office of Technology Commercialization. "Innovation Crossroads is helping founders develop solutions in nationally important technology areas, while giving them the resources and expertise needed to grow. Investments in entrepreneurs today help create the companies that will drive innovation, economic growth and U.S. leadership in the industries of tomorrow." Innovation Crossroads is one of four DOE Lab-Embedded Entrepreneurship Program (LEEP) nodes, building on the program's national success while advancing innovation through ORNL's unique capabilities. Since its first cohort in 2017, Innovation Crossroads has supported over 51 startups, more than half of which have remained in the region, contributing to a thriving innovation ecosystem while developing technologies that address national priorities. Those companies have achieved over $100 million in sales revenue and $326.8 million in follow-on funding. Innovation Crossroads is a two-year fellowship program focused on energy and advanced manufacturing technologies. Through an annual national competition, top entrepreneurial-minded fellows are selected to join the program. Innovators receive a

Source: Oak Ridge National Laboratory

fellowship that includes a substantial grant to use on collaborative research at ORNL and comprehensive mentoring assistance to build a sustainable business model. This year's cohort is supported by the Office of Technology Commercialization and the Office of Critical Minerals and Energy Innovation , as well as the Tennessee Valley Authority . Cohort 2026 entrepreneur-fellows also will complete the Spark Cleantech Accelerator, a 12-week program offered by the University of Tennessee, Knoxville, Spark Innovation Center at the UT Research Park. Cohort 2026 includes: Ernesto Borrego . HAND Technologies is developing advanced materials that dramatically reduce the time required to manufacture high-performance carbon composites for aerospace and defense. The company plans to commercialize resin materials based on its exclusive BODA chemistry, which significantly shortens production times from the current standard of 9 months. By developing new materials that make it faster and easier to manufacture high-performance carbon composites used in defense, aerospace, and other advanced industries, HAND aims to expand critical supply chains and speed the delivery of advanced materials to market. Borrego is cofounder and CEO of HAND Technologies, where he has drawn on his technical background and experience to raise over $7 million in nondilutive funding for the company. Eric Heikkenen . NXT MFG is developing a new metal 3D printing platform that makes it faster, cheaper and easier to manufacture large, complex metal parts. This system combines lower-cost hardware with intelligent software that automates much of the manufacturing process, reducing the need for specialized expertise. The platform uses a unique wire-feed approach and real-time process monitoring to improve production efficiency and part quality. Heikkenen is a mechanical engineer who earned his PhD from the University of Tennessee, Knoxville. He specializes in large-scale metal additive manufacturing and advanced welding-based deposition processes. Erick Hoegberg . DiNeu Technologies is developing a technology that provides faster, lower-cost monitoring of alpha-emitting radioactive materials to support nuclear safety, security and isotope production. Its diamond-based sensor system can accurately identify radioactive elements and specific isotopes in liquid samples, providing near-real-time measurements for processing, disposal, quality control and nuclear security. The system has received more than $2.9 million in funding through DOE's ARPA-E program and the Y-12 National Security Complex and has attracted interest from national laboratories, private companies, and academic researchers. By delivering faster, more affordable measurements than current methods, the company aims to improve the safe and efficient management of nuclear materials. Hoegberg earned his doctorate in nuclear engineering from the University of Tennessee, Knoxville. His research focused on developing advanced radiation detection systems that advance the DOE mission across its portfolio. Marton Krivan . Aquafer Technologies develops water treatment materials that work with existing municipal and residential treatment systems to remove per- and poly-fluoroalkyl substances (PFAS), often called "forever chemicals." Its patent-pending approach is easier and less expensive to adopt than many newer alternatives while providing longer-lasting, broad protection against more than 1,000 PFAS compounds. The technology has been successfully tested in real-world settings and is supported by an exclusive worldwide license and National Science Foundation certification for drinking water applications. Krivan is the manufacturing lead at Aquafer Technologies and a graduate of the University of Tennessee, Knoxville in industrial engineering. David Preiss . Variable Machines is developing a low-cost, programmable mold system that can be reconfigured to produce different composite parts without building a new mold for each design. The platform replaces traditional single-use tooling with a digitally controlled surface, reducing manufacturing time, cost and material waste. By making composite manufacturing more flexible and efficient, Variable Machines aims to strengthen domestic manufacturing and support industries such as aerospace, maritime and electrification. Preiss earned his master's degree from MIT, where his research focused on precision machine design and laser machining diamond rotors for use in nuclear magnetic resonance spectroscopy. He has worked in industry to develop next-generation digital fabrication tools. Daniel Rau . Many of the critical minerals that the United States relies on are recovered as by-products from operating mines. Kunin is developing a new approach that helps recover critical minerals, such as copper, nickel, cobalt and uranium, more quickly and efficiently. Its patent-pending nanofiber system is designed to replace traditional ion exchange resin beads with a higher-performance material that captures valuable minerals faster while using the same proven chemistry. The company's technology has demonstrated significantly higher processing capacity than conventional systems and is being developed in partnership with nanofiber manufacturing experts. Rau is a graduate of Vanderbilt University and was previously selected as a 50 Years Venture Fellow and Harpoon Ventures Black Flag Fellow. In total, the Department of Energy selected 29 innovators and entrepreneurs to join the latest cohort of LEEP. Click here to read more. UT-Battelle manages ORNL for the Department of Energy’s Office of Science, the single largest supporter of basic research in the physical sciences in the United States. The Office of Science is working to address some of the most pressing challenges of our time. For more information, please visit energy.gov/science . – Brynn Downing Media Contact Brynn B Downing , Executive Communications Specialist , DOWNINGCB@ORNL.GOV

Source: Oak Ridge National Laboratory

Activity Time - Word Search

Find the words below in the puzzle. Words go across or down only.

Words to Find:

L	V	O	O	H	G	M	K	V	Y	S
W	P	V	Q	W	J	G	O	R	O	M
R	J	N	C	Q	J	P	I	E	J	V
S	C	Y	Q	U	J	M	E	U	S	Y
W	O	J	O	K	N	S	Z	E	W	F
Y	E	K	G	U	B	M	X	Y	C	E
A	A	B	Z	M	O	C	N	M	I	G
G	K	F	P	E	S	C	F	E	Y	F
X	O	G	Y	T	P	D	K	N	G	F
J	Z	A	R	D	G	I	H	X	J	N
I	M	B	X	Z	W	V	B	X	K	X