



10 Quick Reads From NSF.gov

May 1, 2017

01

World-renowned microbiologist Rita R. Colwell to receive the Vannevar Bush Award

The National Science Board (NSB) has announced Rita R. Colwell, distinguished university professor at the University of Maryland College Park and Johns Hopkins University Bloomberg School of Public Health, senior advisor and chairman emeritus at Canon U.S. Life Sciences, and founder and chairman at CosmosID Inc., will receive the 2017 Vannevar Bush Award. Colwell was recognized for her leadership in such areas as microbiology, ecology, infectious disease, public health, computer and satellite technology, and life-saving contributions in the areas of global infectious diseases, water and health. NSB will present the award to Colwell, who was NSF's 11th director, at the annual awards ceremony on May 9. Learn more about the 2017 Vannevar Bush Award recipient in this [news release](#).



02

NSF Director France Córdova speaks at Northeastern University's Interdisciplinary Science and Engineering Complex opening ceremony

In remarks at the ribbon-cutting ceremony for Northeastern University's Interdisciplinary Science and Engineering Complex in Boston, Massachusetts, NSF Director France Córdova welcomed the facility "to the nation's growing ecosystem of technological incubators." She said the center will "put into practice the concept of 'convergence,' which can be characterized as the deep integration of knowledge, technique and expertise from multiple fields to form new and expanded frameworks for addressing scientific and societal challenges and opportunities. Convergence merges strengths of different disciplines, different thinkers, to create something unique, something more resilient." Read the Director's [full remarks](#) on the NSF website.



03

NSF honors two early career researchers with the Alan T. Waterman Award

NSF named Baratunde A. Cola, an associate professor at Georgia Tech's George W. Woodruff School of Mechanical Engineering, and John V. Pardon, a Clay Research Fellow and professor of mathematics at Princeton University, as recipients of the Alan T. Waterman Award. This is only the second time in the award's 42-year history that two recipients were named in the same year. The Waterman Award recognizes outstanding researchers age 35 and under in NSF-supported fields of science and engineering and is the nation's highest honor for early career scientists and engineers. Cola pioneered new engineering methods and materials to control light and heat in electronics at the nanoscale. Pardon's research focuses on geometry and topology, and he is known for solving problems that stumped other mathematicians for decades and generating solutions that provide new tools for geometric analysis. See this [NSF news release](#) to find out more about the awardees.



04

And speaking of the Waterman Award... NSF modifies eligibility criteria to draw more nominees

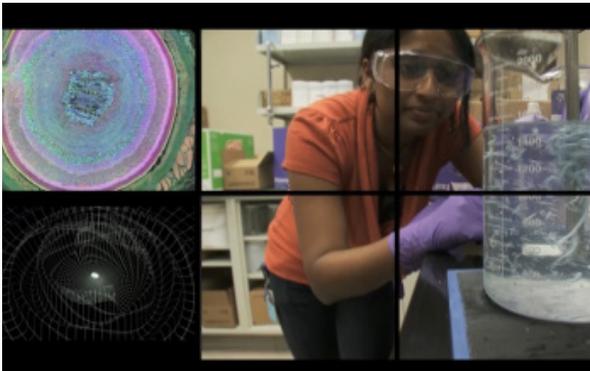
NSF has announced changes in the eligibility criteria for the Alan T. Waterman Award. Scientists who are 40 years of age or younger, or are up to 10 years post Ph.D., will be eligible to be nominated for the award. Previous requirements mandated nominees be 35 years or younger, or up to seven years post Ph.D. NSF requested the criteria be modified to increase the number of excellent and diverse applicants. NSF approved the modifications in November 2016. The new criteria take effect with the 2018 competition, which opens in late summer 2017. Read more about the changes to the eligibility criteria in this NSF [news release](#).



05

Now available: Extended version of video on the impact of NSF-supported fundamental research

NSF has released a new version of its video, "Creating Knowledge to Transform Our Future." It provides a brief look at how NSF-supported fundamental research helps drive the nation's economy, enhance security, advance knowledge to sustain global leadership and transform the nation's future. The video also looks at the agency's mission, budget and merit review process, showing how NSF investments have helped build the backbone of the U.S. scientific enterprise and transform universities and colleges into centers of scientific innovation, creativity and discovery. View the [video](#) in the NSF Multimedia Gallery.



06

Scientists studying an ice cave in Transylvania gain insights into ancient climate

Ice cores drilled from a glacier in a cave in Transylvania offer new evidence of how Europe's winter weather and climate patterns fluctuated during the last 10,000 years, known as the Holocene period. The cores provide insights into how the region's climate has changed over time. With support from NSF, researchers from the Emil Racoviță Institute of Speleology in Cluj-Napoca, Romania, the University of South Florida's School of Geosciences, and other institutions gathered evidence in the world's most-explored ice cave and oldest cave glacier, hidden deep in the heart of Transylvania in central Romania. The researchers' work could help reveal how the climate of the North Atlantic region, including the U.S., varies over long time scales. Read more about the research in this NSF [news release](#).



07

Understanding how naked mole-rats survive oxygen deprivation

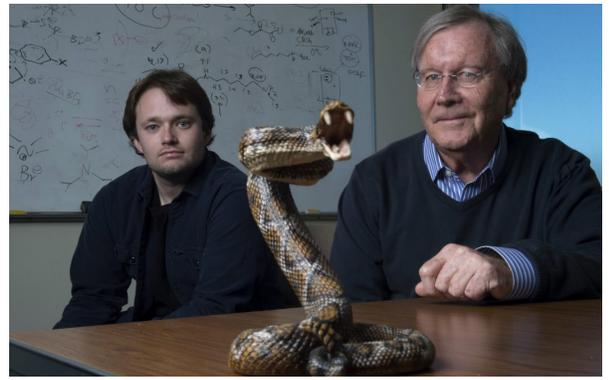
When naked mole-rats are deprived of oxygen, they can survive by metabolizing fructose the same way plants do, according to an international team of researchers. In all other known mammals, when brain cells are starved of oxygen, they run out of energy and begin to die. But the brain cells of naked mole-rats start burning fructose, which produces energy anaerobically through a metabolic pathway that is only used by plants – or so scientists thought. Understanding how the animals do this could lead to treatments for patients suffering crises of oxygen deprivation, as in heart attacks and strokes. Read more in this [News From the Field](#) item that links to the university news release.



08

Researchers develop a way to neutralize deadly snake venom more cheaply and effectively than with traditional anti-venom

A bite from any poisonous snake can cause crippling injuries, loss of limbs--even death. Worldwide, there are 4.5 million bites annually and 100,000 people who die from them. There is anti-venom, but it doesn't work on all poisonous snakes. And treatment for a single bite can cost up to \$100,000. A new remedy out of the University of California, Irvine, could dramatically change those stats. The researchers took a different approach to treating potentially deadly snakebites. Instead of the usual slow, intravenous infusion of antibodies, the team synthesized a nanogel material that absorbs and locks away key protein toxins in the venom, keeping them from bursting cell membranes and doing widespread damage. Hear more in [The Discovery Files podcast](#).



09

Studying brain activity outside the laboratory

Social dynamics--the ways humans interact in groups and influence each other's behavior--play a major role in how people learn. But scientists studying learning using traditional laboratory methods often strip away these important dynamics when seeking to answer specific questions about brain function. Now, a study funded by NSF presents a promising method to assess brain activity in an environment where social dynamics can also be measured and assessed: the classroom. Over the course of a semester, a team of neuroscientists monitored high school students and teachers who wore portable electroencephalogram headsets during class lessons. Using this new method, the scientists found that synchronized brain activity among students in a classroom was a good predictor of their focus, social connectedness and overall classroom engagement. Read more in this NSF [Discovery article](#).



10

New Special Report takes a look at the science of spring

Researchers funded by NSF are studying the science of spring--from flowers' microscopic cells to thunderstorms called supercells and more. Shortly before Earth Day 2017, NSF released a new Special Report, "April Showers Bring... The Science of Spring," that looks at what makes spring such a vibrant, and sometimes dangerous, season. NSF supports studies of such diverse spring subjects as the bloom of plant plankton in the sea, how flowers get their eye-catching colors, and why fertilizer may be good for crops but not always good for the environment. NSF also funds scientists whose research takes them into the hearts of tornadoes and through woodlands filled with Lyme disease-carrying ticks. Read about the research in this [NSF Special Report](#).

