10 Quick Reads From NSF.gov

December 2, 2016

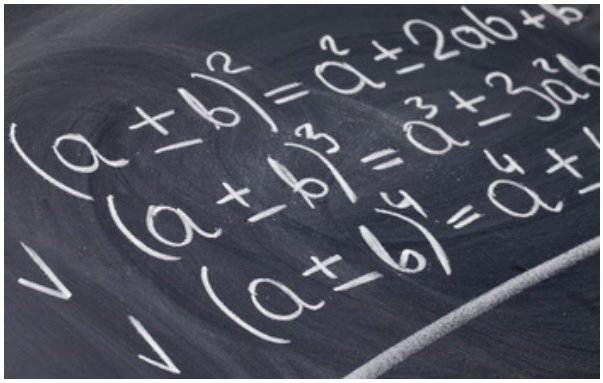
1 NSF evacuates former astronaut Buzz Aldrin from Amundsen-Scott South Pole Station

NSF agreed to provide a humanitarian medical evacuation flight for an ailing visitor from the agency's Amundsen-Scott South Pole Station to McMurdo Station on the Antarctic coast and then to New Zealand. The patient is Buzz Aldrin, who, in 1969, became one of the first men to walk on the moon, as part of the two-man lunar landing crew of Apollo 11. The request to NSF, which manages the U.S. Antarctic Program, came on Dec. 1 local time (U.S. stations in Antarctica keep New Zealand time), from White Desert, a private tourism firm. Find out more in this NSF press release and this follow-up.

2 Remembering Erich Bloch

Erich Bloch was the eighth director of NSF, serving from 1984 to 1990. He was a strong advocate for research and championed funding for high-risk, revolutionary projects. He played an integral role supporting the National Science Foundation Network (NSFNET), a "network of networks" that gave rise to today's internet and was also instrumental in creating NSF's Engineering Research Centers and Science and Technology Centers programs. Bloch died at his home on Friday, Nov. 25, at age 91. In a statement celebrating his contributions, NSF Director France Córdova noted, "Erich Bloch was a visionary leader who pushed the boundaries, championing research that led to some of the greatest innovations of our time. On behalf of the agency and our NSF community at large, we extend our deepest sympathies to his family." Read more in the NSF press statement.

3 NSF awards $61 million in new projects to enhance understanding of STEM education and workforce development

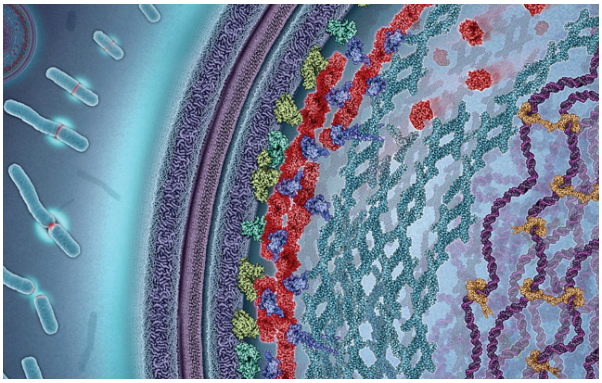


To continue to achieve nationwide excellence in science, technology, engineering and mathematics (STEM) education and workforce development, NSF has invested $61 million in new awards. Made through the NSF Education and Human Resources Directorate (EHR) Core Research program (ECR), the awards focus on projects that help the educational community understand, explain and address challenges in STEM learning and participation. EHR funded a total of 67 projects through ECR awards in Fiscal Year 2016, with the goal of accelerating the directorate's efforts to strategically and broadly improve STEM teaching and learning. Find out more in this NSF press release.

4 LIGO begins next search for gravitational waves

After a series of upgrades, researchers have reactivated the twin detectors of the Laser Interferometer Gravitational-Wave Observatory (LIGO) and resumed the search for ripples in the fabric of space and time known as gravitational waves. NSF Director France Córdova noted, "The last time scientists from the NSF-funded Laser Interferometer Gravitational-wave Observatory (LIGO) searched for gravitational waves, they succeeded. They detected gravitational waves from merging black holes 1.3 billion light years away. Researchers devoted more than 40 years to get to this point, and the National Science Foundation -- I'm proud to say -- was there all along the way, providing critical support to make this scientific achievement possible. Today, that journey continues." Read the complete statement on the website.

5 The Vizzies: Finalists announced and public invited to vote for People's Choice winners

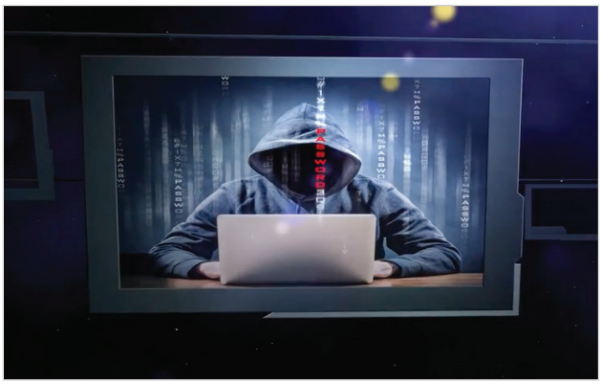


NSF and *Popular Science* announced the top 10 finalists from each category in the Vizzies Visualization Challenge and invited the public to vote for People's Choice winners. The top 10 entries in five categories – Photography, Illustration, Posters & Graphics, Interactive, and Video – and voting information were posted in a special gallery. This year marks the 15th anniversary of the Vizzies competition. Formerly known as the International Science and Engineering Visualization Challenge, the competition aims to recognize some of the most illustrative and impactful visualizations from the worlds of science and engineering. Voting for the People's Choice winners closes on Dec. 4. Find out more about the Vizzies in this special report.

6 Engineers design new lead detector for water

Mechanical engineer Junhong Chen and a team at the University of Wisconsin, Milwaukee, (UWM) have developed what you might think of as a "canary in the coal mine" for lead in water. With support from NSF, the researchers designed a sensor with a graphene-based nanomaterial that can immediately detect lead and other heavy metals. The new platform technology can be used for one-time testing of lead in tap water through a handheld device. The small sensors also can be integrated into water meters and purifiers, with the goal of continuous monitoring to prevent exposure to lead that could be introduced between the water treatment plant and the home. Find out more in this episode of the NSF video series Science Nation.

7 NSF Science Now: Episode 47

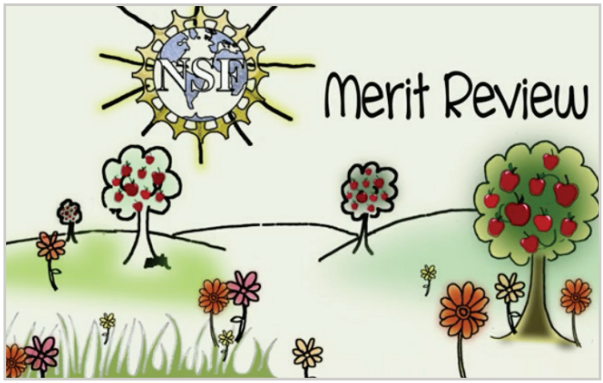


NSF Science Now is a newscast covering some of the latest NSF-funded innovations and advances across all areas and disciplines, from astronomy to zoology. In this week's episode, host Dena Headlee looks at new tools to protect against malicious websites, research studying how older adults really hear, and the efforts of a team working to restore the sense of touch to amputees and those with paralysis. See more in this video from the NSF Multimedia Gallery.

8 NSF Director France A. Córdova at the Government-University-Industry Research Roundtable

NSF Director France A. Córdova discussed NSF's 10 Big Ideas in remarks at the Government-University-Industry Research Roundtable (GUIRR) in October 2016. An excerpt: "Looking ahead, what role does NSF plan to play in the future of innovation? The father of NSF, Vannevar Bush, observed that 'basic research leads to new knowledge,' and NSF's continued commitment to investing in basic research will be the foundation for future scientific breakthroughs. Presently, NSF has 10 Big Ideas that we collaboratively developed regarding ideas NSF is uniquely suited to address. Six of these are research ideas, and four are process ideas. These concepts will help us focus on the most promising transformative scientific research for the future." The Director's remarks are posted on the NSF website.

9 Video explains NSF's Merit Review Process



NSF receives about 50,000 research proposals every year. The foundation's mission is to promote the progress of science, but it's able to support only a fraction of the proposed research with its limited resources. This video briefly explains how NSF determines which research has the greatest potential–which would be the most fruitful investment of taxpayer dollars and best align with the foundation's mission to promote the progress of science. The video is available for viewing or downloading from the NSF Toolkit.

10 Universities report four years of declining federal funding

Federal funding for research at higher education institutions declined for a fourth straight year, according to a new report from the National Center for Science and Engineering Statistics (NCSES). During a peak in Fiscal Year (FY) 2011, federal funding accounted for 62.5 percent of total higher education research and development (R&D) expenditures. That figure dropped to 55.2 percent in FY 2015, the most recent year for which data are available. Overall, universities reported $68.8 billion in R&D expenditures for FY 2015; federal funding accounted for $37.9 billion of that. Find out more in the NSF press release and read the full report.

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