Quick Reads From NSF.gov

January 2, 2020

01

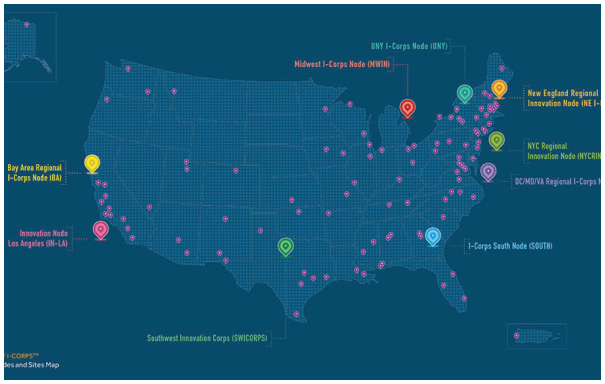
JASON Report and protecting research and facilitating collaboration

NSF is committed to safeguarding the integrity and security of science, while also keeping fundamental research open and collaborative. In December, an independent voice affirmed the scope and scale of today's threats to research integrity. JASON, a group of advisors with expertise in both science and security, produced a study titled "Fundamental Research Security" that advocates increased engagement with academia, professional societies, law enforcement, intelligence and other stakeholders. NSF is leading the way in ensuring taxpayer-funded research remains secure. Find out how and read the JASON study in this Special Report.

02

NSF I-Corps™

NSF's Innovation Corps (I-Corps™) program prepares scientists and engineers to extend their focus beyond the university laboratory and accelerates the economic and societal benefits of NSF-funded basic research projects that are ready to move toward commercialization. Through I-Corps, NSF grantees learn to identify valuable product opportunities that can emerge from academic research and gain skills in entrepreneurship through training in customer discovery and guidance from established entrepreneurs. Learn more in this NSF Special Report.



03

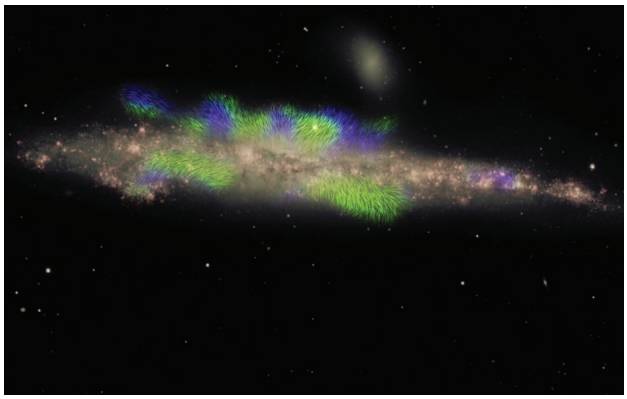
Statements on Sethuraman Panchanathan's nomination as NSF director

On Dec. 18, 2019, President Donald J. Trump announced his intention to nominate Sethuraman "Panch" Panchanathan to serve as the 15th director of NSF. Panchanathan has been a member of the National Science Board since 2014 and currently leads knowledge enterprise development at Arizona State University. Find out more in this NSF Press Statement.

04

Giant magnetic ropes seen in Whale Galaxy's halo

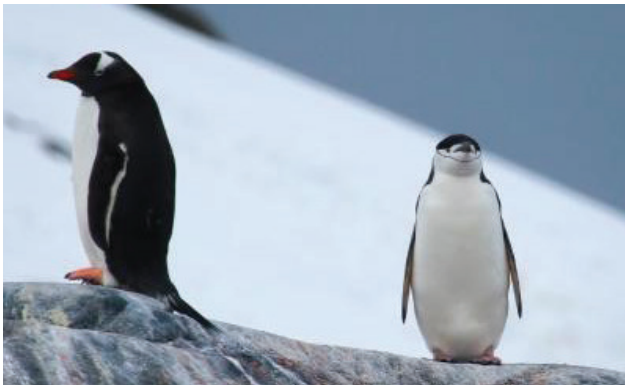
Using NSF's Karl G. Jansky Very Large Array radio telescope, a team of astronomers has captured for the first time an image of large-scale magnetic fields in the halo of a faraway spiral galaxy, confirming theoretical modeling of how galaxies generate magnetic fields and potentially increasing knowledge of how galaxies form and evolve. Learn more in this NSF Research News item.



05

Whaling and climate change lead to 100 years of feast or famine for Antarctic penguins

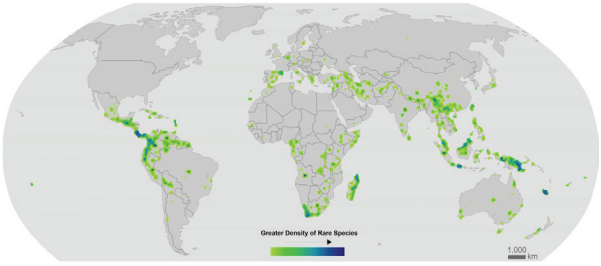
New NSF-funded research reveals how two penguin species, the gentoo and the chinstrap, have dealt with more than a century of human impact in Antarctica, and why some species are winners and others are losers in this rapidly changing ecosystem. Researcher Michael Polito co-led a team of researchers working to understand how human hunting of seals and whales over the last century, and fishing in modern times, has affected penguin populations. Find out more in this NSF Research News item.



06

Nearly 40% of plant species are very rare, and vulnerable to climate change

Almost 40% of global land plant species are categorized as "very rare," and these species are most at risk for extinction as climate continues to change, according to new NSF-funded research. Thirty-five researchers from institutions around the world worked for 10 years to compile 20 million observational records of the world's land plants. The result is the largest dataset on botanical biodiversity ever created. The researchers hope this information can help reduce loss of global biodiversity by informing conservation actions that include consideration of the effects of climate change. Find out more in this NSF Research News item.

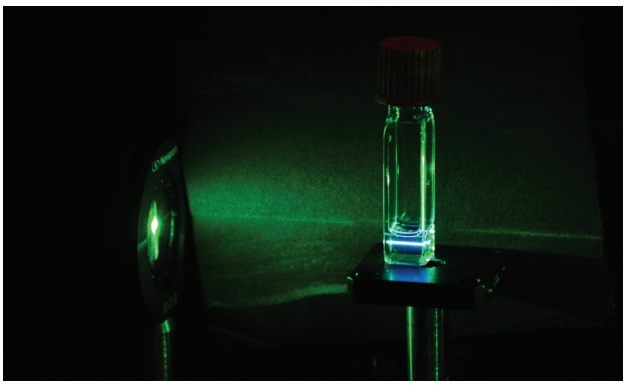


Global Hotspots of Rare Plant Species

07

Making higher energy light to fight cancer

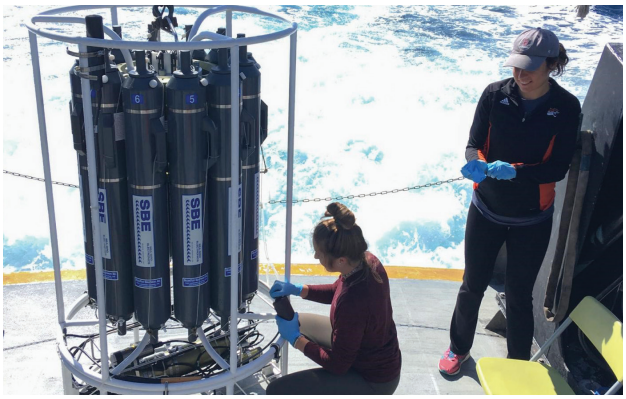
Scientists at the University of California, Riverside, and the University of Texas at Austin have demonstrated that it's possible to achieve photon up-conversion, the emission of higher energy light, when using carefully designed structures containing silicon nanocrystals and specialized organic molecules. Find out more in this NSF Research News item.



08

Scientists show 'Red Queen' evolutionary principle at work in microbes in waters off Southern California

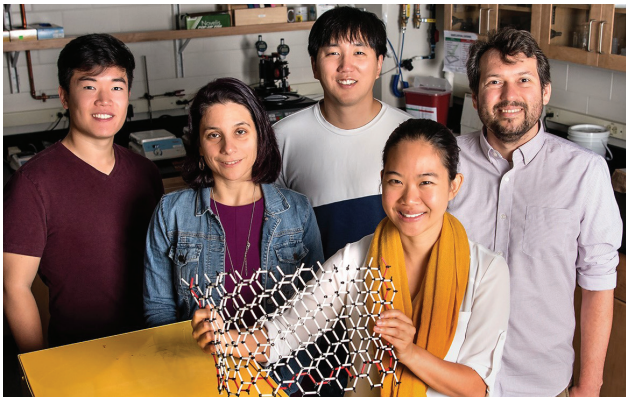
In the waves off Southern California, germ warfare occurs in a struggle as old as life itself. That's where University of Southern California marine biologists recently completed a comprehensive new study that shows the tactics bacteria and viruses use to gain advantages against each other. What they found is that an unlikely standoff occurs, regardless of time, season or location -- proof of the evolutionary principle of the "Red Queen." Find out more in this NSF Research News item.



09

Graphene: The more you bend it, the softer it gets

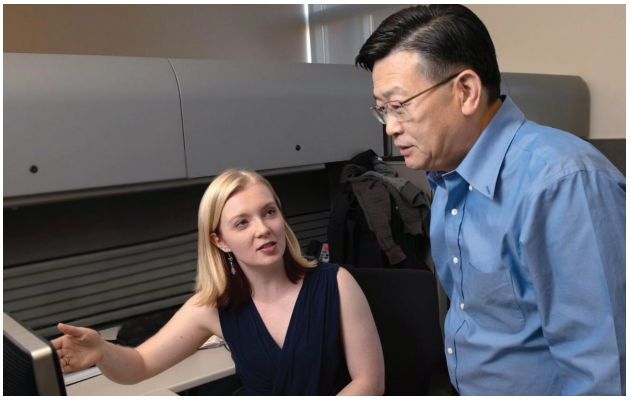
New research by NSF-funded engineers at the University of Illinois combines atomic-scale experiments with computer modeling to determine how much energy it takes to bend multilayer graphene -- a question that has eluded scientists since graphene was first isolated. Graphene is the strongest material in the world and is considered to be a potential key ingredient for future technologies. Read more in this NSF Research News item.



10

Predicting Alzheimer's-like memory loss before it strikes

For someone with Alzheimer's disease, there's no turning back the clock. By the time memory loss and other worrisome signs appear, cognitive decline has already begun. Now, NSF-funded researchers at Gladstone Institutes are approaching this devastating disease from a different angle. Find out more in this NSF Research News item.



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