



U.S. DEPARTMENT OF
ENERGY

COMMUNIQUE

Office of Science

30 March 2020

Communique provides a biweekly review of recent Office of Science Communications and Public Affairs work, including feature stories, science highlights, social media posts, and more. This is only a sample of our recent work promoting research done at universities, national labs, and user facilities throughout the country. *Please note that some links may expire after time.*



Fresh Food and Faces in the Distant Arctic Ocean

After weeks of churning slowly through sea ice in the remote Arctic Ocean, a Russian icebreaker carrying scientists, crew and new equipment has reached the German RV Polarstern, which is frozen into drifting sea ice about 100 miles from the geographic North Pole. During the next few days, people will carefully ferry tons of cargo between the two ships and dozens of scientists and crew will switch cabins, some bound for home after months on dark ice, others thrilled to begin a two-month stint serving science on the international Arctic climate mission.

[Click here to read more about the MOSAiC Expedition and contributions of the University of Colorado, Boulder's Cooperative Institute for Research in the Environmental Sciences.](#)

NEWS CENTER

The Office of Science posted 55 news pieces between 3/15/2020 and 3/29/2020, including 30 university articles and 23 pieces from the labs and user facilities.

Scientists at [SLAC National Accelerator Laboratory](#) captured slow-motion movies just trillionths of a second long. These movies caught some surprising behavior in some molecules and showed other behaviors in unprecedented detail.

Scientists from [Fermilab](#), Brookhaven National Laboratory, and Berkeley Lab have designed, built, and tested a powerful new magnet for operation at CERN. The device set a record for the highest field strength ever recorded, raising the standard for magnets in high-energy particle accelerators.

An international team led by [Princeton Plasma Physics Laboratory](#) has demonstrated the use of artificial intelligence that can predict and avoid disruptions in fusion reactions.

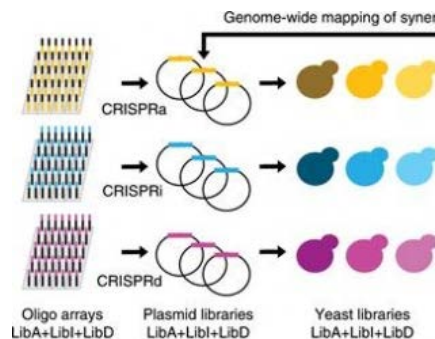
Using an X-ray accelerator at SLAC National Accelerator Laboratory, researchers from [Arizona State University](#) have imaged a key protein in tularemia, hoping to develop targeted drugs to protect against the pathogen.

A professor from the [College of William and Mary](#) has been studying the presence of a nuclear isotope in honey, a phenomenon that has roots back to the nuclear bomb tests of the 1940s and 1950s and that might have bearing on the recent collapse in the population of pollinating insects.

Researchers from the [Massachusetts Institute of Technology](#) have observed, for the first time, how plants protect themselves from sun damage. A better understanding of this process could help to develop new ways to improve crop yields.

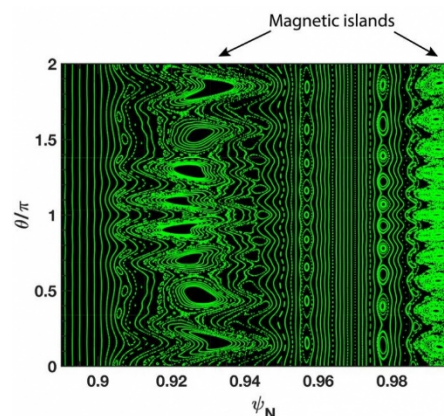
SCIENCE HIGHLIGHTS

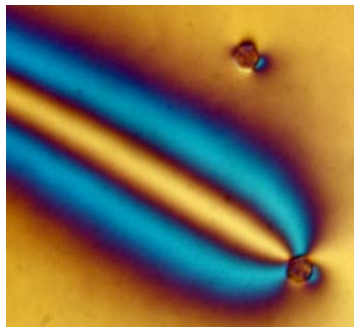
The Office of Science posted 13 new highlights spotlighting BER, BES, and FES between 3/15/2020 and 3/29/2020.



Researchers from the [University of Illinois at Urbana-Champaign](#) have developed a new system to alter gene expression in yeast, identifying multiple genes that control complex traits. This will allow scientists to better engineer yeast for biofuel production.

Physicists at [Princeton Plasma Physics Laboratory](#) and DIII-D National Fusion Facility used computer simulations to better understand how magnetic ripples can prevent damage to fusion reactors.





Scientists at the [University of Colorado, Boulder](#) are using silica particles to model atomic behavior that is observable with optical microscopes.

IN THE NEWS

[VICE: America's Supercomputers Are Now Helping Scientists Fight Coronavirus](#)

The nation's most powerful computers, including Summit at Oak Ridge National Lab, are pitching in to fight coronavirus as part of a new consortium announced by the White House.

[Forbes: Is 'Planet 9' Next? Staggering Haul Of 139 Minor Planets Found In Outer Solar System](#)

Researchers using data from the Dark Energy Survey have identified more than 300 trans-Neptunian objects, minor planets in the far reaches of the solar system.

[CNBC: Next-gen supercomputers are fast-tracking treatments for the coronavirus in a race against time](#)

Researchers are using Oak Ridge National Lab's Summit, the world's fastest supercomputer, to help find promising candidate drugs to fight coronavirus.

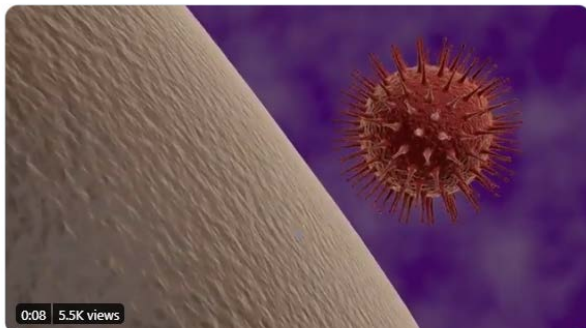
TOP TWEETS

The Office of Science sent out 60 tweets between 3/15/2020 and 3/29/2020. Here are our two most popular from the past two weeks:



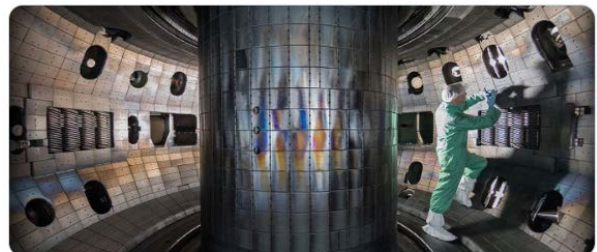
DOE Science
@doescience

Scientists have used the most powerful supercomputer in the world, [@OLCFGOV](#) at [@ORNL](#), to identify 77 compounds with the potential to block [#COVID19](#) from infecting cells [#ICYMI](#) [energy.gov/science/articl...](#)

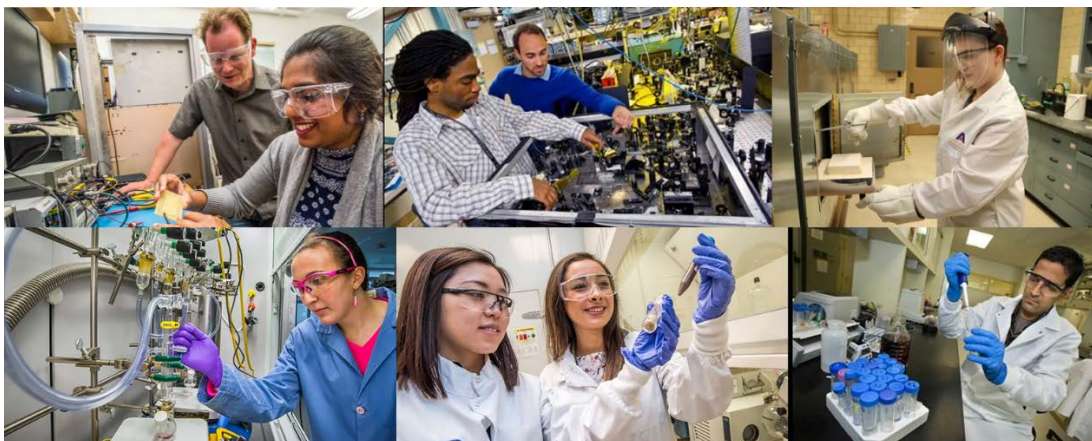


DOE Science
@doescience

Science [#PicOfTheWeek](#): The DIII-D National Fusion Facility—operated by [@GeneralAtomsics](#) for [@ENERGY](#)—is the largest magnetic fusion research facility operating in the US. Supercomputers [@ORNL](#) are running simulations to overcome challenges to [#fusion](#) energy [olcf.ornl.gov/2020/01/02/spe...](#)



BY THE NUMBERS



The Office of Science offers several programs that support students in a wide variety of institutions, from community colleges to PhD programs. In 2019, 1,060 students participated in the Community College Internships (CCI), Science Undergraduate Laboratory Internships (SULI), and Office of Science Graduate Student Research Awards (SCGSR) programs. The next deadline to apply for SCGSR is May 6th. The deadline to apply for CCI and SULI for Fall 2020 is May 28th.

END NOTES

The Office of Science's Light Sources



Researchers from [Northwestern University](#) and the University of Chicago have recently used the Advanced Photon Source (APS) at Argonne National Laboratory, a Department of Energy light source, to map proteins from COVID-19. Light sources like the [APS](#), the Advanced Light Source at Berkeley Lab, and the Linac Coherent Light Source at SLAC National Accelerator Laboratory, act as “giant X-ray microscopes,” producing extremely bright, focused X-rays that illuminate the structure and chemistry of matter at the molecular and atomic level. Along with [tackling the challenge of coronavirus](#), Office of Science light sources have been used to [shed light on how anti-asthmatic drugs work](#), to [illuminate 11th century manuscripts](#), and [explore Ancient Egyptian soil and mummy bones](#).

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