U.S. DEPARTMENT OF ENERGY

Office of Science

COMMUNIQUE

2 March 2020

*Comm*unique 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.*

Stargazing with Computers: What Machine Learning Can Teach Us About the Cosmos

Once the Rubin Observatory Legacy Survey of Space and Time (LSST) starts taking data in 2022, it will take photos of 37 billion galaxies and stars over the course of a decade. The sheer volume and strangeness of the data will make it difficult to analyze. While a stargazer new to an area might go out in the field with a local expert, scientists don't have such a guide to new pieces of the universe. So they're making their own. More accurately, they're making many different guides that can help them identify and categorize these objects. Astrophysicists supported by the Office of Science are developing these guides in the form of computer models that rely on machine learning to examine the LSST data.

Click here to read more about the how machine learning can help astrophysicists uncover cosmological mysteries.

NEWS CENTER

The Office of Science posted 58 news pieces between 2/18/2020 and 3/1/2020, including 22 university articles and 28 pieces from the labs and user facilities.

Scientists at Berkeley Lab have found an unexpected link between ozone chemistry and cells' ability to ward off disease. This link may explain how the risk for developing chronic diseases or cancers increases with age and how food decomposes over time.

Researchers at Princeton Plasma Physics Laboratory have found that beams of fast-moving particles launched toward Earth from a satellite could help map the precise shape of the magnetic field that protects the planet from cosmic rays.

Using computing resources at the Oak Ridge Leadership Computing Facility, a team from Cornell University has used machine learning to unlock complex drug mechanisms, creating a framework for future drug design.

Inspired by the elasticity of takeout noodles, University of Chicago scientists created a new synthetic tissue that can much more closely mimic biological skin and tissue than previous technologies.

Soil scientists from Cornell University have found that, although adding carbon organic matter to agricultural fields is usually advantageous, it may muddle the beneficial underground communication between legume plants and microorganisms.

Research led by the University of Colorado Boulder examines how a nuclear detonation might shift the chemistry of the world's seas.

IN THE NEWS

Gizmodo: Searching for Dark Matter With Quantum Computers, One Blip of Light at a Time

Gizmodo's piece about efforts to use quantum technology for particle physics reported on Fermilab's work to find axions with quantum sensors.

New York Times: Cloud Computing Is Not the Energy Hog That Had Been Feared

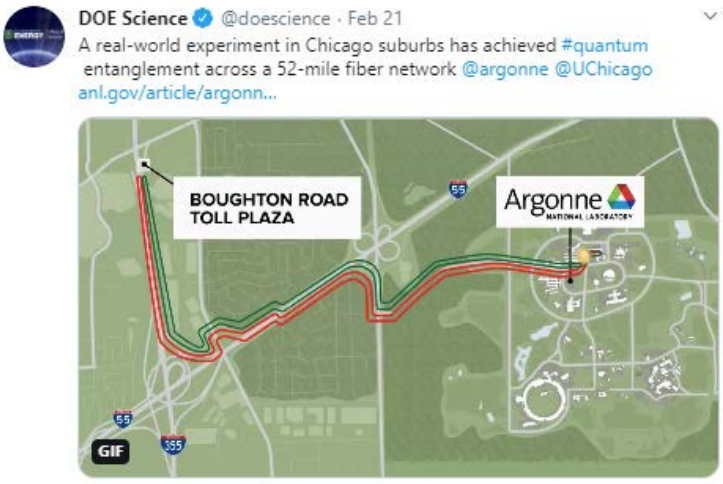
In this article about cloud computing's energy usage, scientists from Berkeley Lab provide insigths that may counter prevailing assumptions on data centers and energy use.

The Economist: Knowing How Plants and Microbes Work Together Can Boost Crop Yields

This article about soil microbiology cites a PNNL researcher's work creating simplified microbe communities.

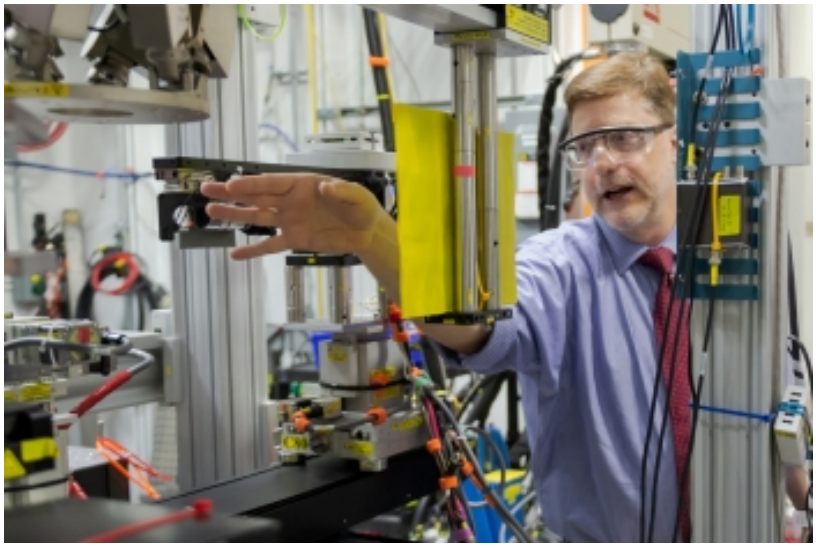
TOP TWEETS

The Office of Science sent out 58 tweets between 2/3/2020 and 2/17/2020. Here are our two most popular from the past two weeks:



BY THE NUMBERS

Meet the User Facility Director: Stephen Streiffer



The Office of Science currently funds 27 user facilities hosted by 10 national labs, one industry partner, and one that has varying locations around the world. Large-scale user facilities have been integral to the Office of Science mission from the earliest days and have become increasingly vital tools of scientific discovery. "Meet the Director: Stephen Streiffer" is one in a continuing series profiling the directors of these important facilities. Streiffer served as the interim director of the Advanced Photon Source at Argonne National Laboratory for a year before becoming its permanent leader in 2015.

END NOTES

PODCAST: ORNL's the Sound of Science

Applications of geographic information systems span far beyond apps for navigation and weather. These complex systems hold massive amounts of data that scientists can use to solve big problems. This episode of the Sound of Science explains how Oak Ridge National Laboratory has used its expertise in GIS to aid in disaster relief, find missing populations for a polio eradication campaign, and map communities using social media.

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No. 30: 2 March 2020