U.S. DEPARTMENT OF ENERGY

Office of Science

COMMUNIQUE

15 June 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.*

Global Environmental Changes Leading to Shorter, Younger Trees

Researchers led by Pacific Northwest National Laboratory found that rising temperatures and carbon dioxide have been altering the world's forests through increased stress and carbon dioxide fertilization and through increasing the frequency and severity of disturbances such as wildfire, drought, wind damage and other natural enemies. Combined with forest harvesting, the Earth has witnessed a dramatic decrease in the age and stature of forests.

Click here to read more about how ongoing environmental changes are transforming forests worldwide.

NEWS CENTER

The Office of Science posted 59 news pieces between 6/2/2020 and 6/15/2020, including 30 university articles and 27 pieces from the labs and user facilities.

The Dark Energy Spectroscopic Instrument, which will map millions of galaxies in search for answers about dark energy, has reached its final milestone toward its startup.

High-intensity fires can destroy peat bogs and cause them to emit huge amounts of stored carbon into the atmosphere, but a Duke University study finds that low-severity fires can help protect stored carbon and enhance the peatlands' long-term storage.

Researchers using the supercomputers at Argonne National Laboratory are leading highly detailed modeling efforts to understand how COVID-19 spreads through populations.

Researchers from Tulane University have found that, given the present-day rate of global sea-level rise, the remaining marshes in the Mississippi Delta are likely to drown.

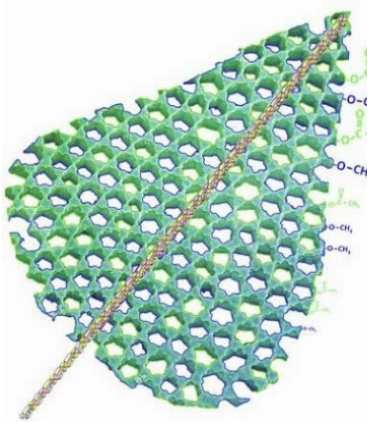
Scientists working on the SENSEI experiment at Fermilab have demonstrated for the first time a particle detector with both the sensitivity and reduced background rates needed to effectively search for low-mass particles of dark matter.

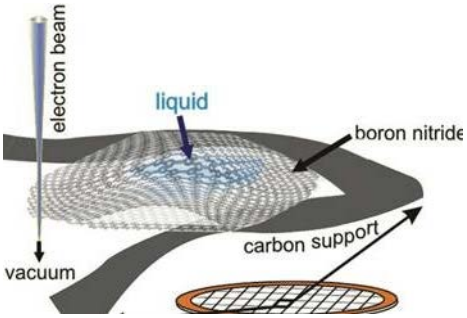
A study from the University of Wisconsin-Madison has found that the grain boundaries of ceramics are unstable when exposed to radiation, helping engineers better understand the properties of these widely-used materials.

SCIENCE HIGHLIGHTS

The Office of Science posted six new highlights spotlighting BES and BER between 6/2/2020 and 6/15/2020.

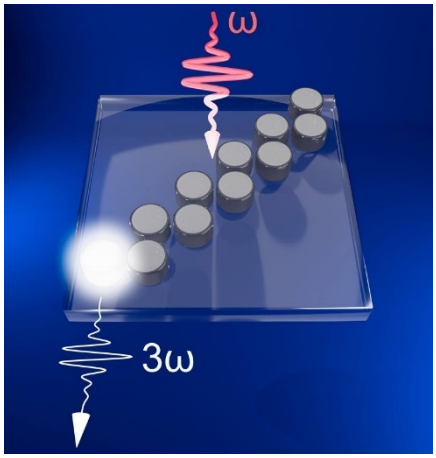
Plants emit gases like methanol and acetic acid that are not directly related to photosynthesis and that have an unknown origin. Berkeley Lab researchers have found a possible source: natural chemical modification in the cellulose in plant cell walls and accompanying metabolic changes.





Researchers from Oak Ridge National Laboratory and the University of Illinois at Chicago demonstrated new ways to use electron microscopy to study liquids at high resolution. This work could lead to new ways for scientists to describe liquids, the interfaces between fluids, and materials labeled with isotopes.

Scientists from Oak Ridge National Laboratory found a new way to build silicon nanodisks, allowing scientists to guide light along the outside of these tiny structures. Improving the ability to move the light in multiple dimensions will make it easier to use these nanostructures in new applications.



IN THE NEWS

New York Times: Going Viral, or Not, in the Milky Way

This article considering the future of science in the face of the COVID-19 pandemic and the recent SpaceX Falcon 9 launch features the Mechanical Ventilator Milano, a low-cost ventilator that volunteers from Fermilab worked on.

Nature: Artificial-Intelligence Tools Aim to Tame the Coronavirus Literature

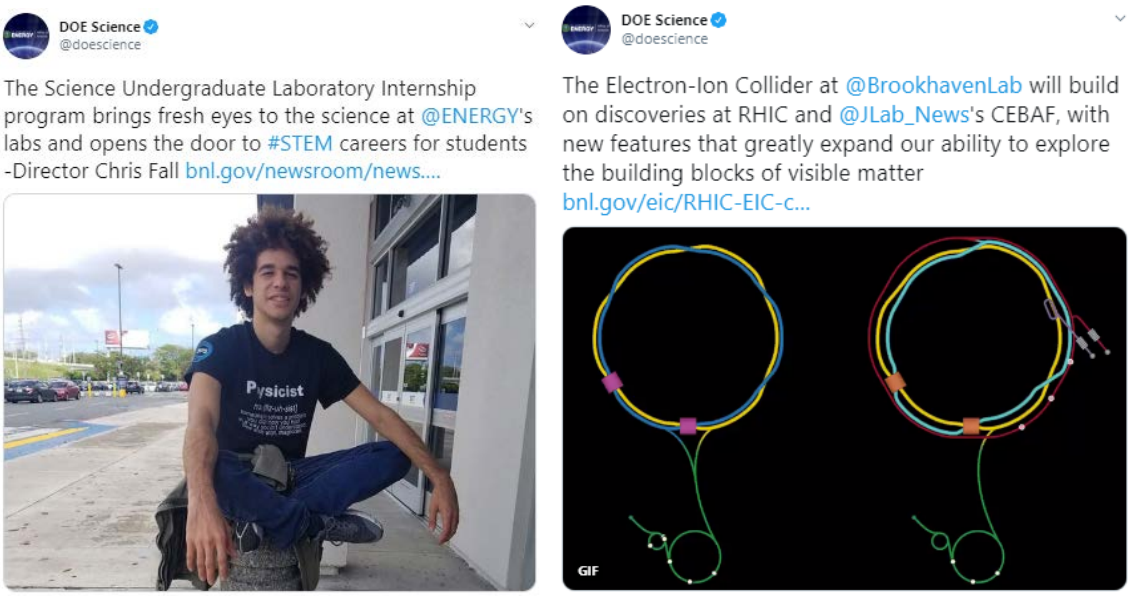
A tool developed at Berkeley Lab for processing natural language may help biomedical researchers and clinicians find the COVID-19 papers that they need in pursuit of solutions to the pandemic.

Washington Post: Capturing the Green Energy of the Deep Blue Sea

Small numbers of underwater energy devices are unlikely to harm marine life, change their habitats, or affect the natural flow of ocean waters, according to a report released by oceanographers with Pacific Northwest National Laboratory.

TOP TWEETS

The Office of Science sent out 62 tweets between 6/2/2020 and 6/15/2020. Here are our two most popular from the past two weeks:



BY THE NUMBERS

On June 6th, middle- and high-school students competed in the 30th National Science Bowl, the first virtual competition in the program's history. Out of 41 middle school teams and 61 high school teams, Preston Middle School from Colorado and Dougherty Valley High School from California emerged as the 2020 NSB champions. Both teams will be recognized at the 2021 competition awards ceremony.

END NOTES

Video: DESI Begins

The Dark Energy Spectroscopic Instrument will expand our knowledge about the accelerating expansion of the universe. But how? This video from Berkeley Lab explains how DESI, installed on the Mayall Telescope at Kitt Peak National Observatory, will create a 3D map of tens of millions of galaxies and millions of brilliant objects called quasars during five years of observations.

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