U.S. DEPARTMENT OF ENERGY
Office of Science

COMMUNIQUE

23 November 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.*

Atmospheric Scientists Study Fires to Resolve Ice Question in Climate Models

Researchers at Colorado State University recently published two papers addressing the deposition of aerosols and the effects of black carbon on ice nucleation. Studying black carbon is important to scientists. In the atmosphere, it absorbs solar radiation, influences cloud formation, and affects cloud optical properties and temperature gradients. In

the cryosphere, soot from black carbon deposition alters reflectivity and speeds melting on snow and ice surfaces. Both studies were supported, in part, by DOE's Atmospheric System Research program

Click here to read more about the black carbon impacts of wildfires.

NEWS CENTER

The Office of Science posted 58 news pieces between 11/09/2020 and 11/22/2020.

Researchers from **Pacific Northwest National Laboratory** have found that micro- and nano-plastics are not absorbed into plant cells from soils where they build up, unlike some other contaminants. They did find however that these plastics attach to the root caps of plants.

Chemists from **UC San Diego** are magnifying the molecular clarity of hydrogen-bond interactions to discover the properties that influence chemical reactions and materials' functions.

Researchers from **Argonne National Laboratory** and SLAC National Accelerator Laboratory are developing artificial photosynthesis methods to enable the direct air capture of carbon dioxide.

Researchers at **Michigan Tech** have mapped a noise-reducing magneto-optical response that occurs in fiber-optic communications, opening the door for new materials technologies.

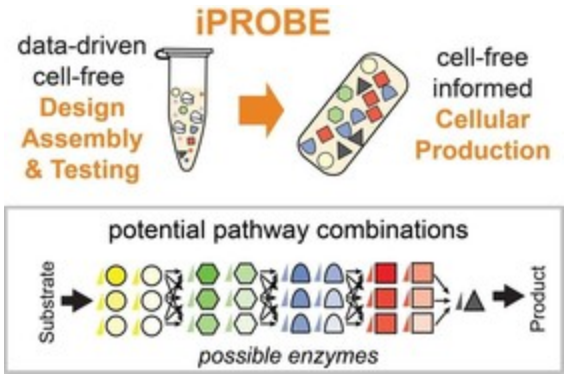
Using X-rays at **Oak Ridge National Laboratory**, researchers have determined that several hepatitis C drugs may have potential to treat COVID-19 by stopping the "heart" of the virus.

Physicists from **Stanford University** is studying the strange behavior of electrons in order to unlock the mysteries of superconductivity.

SCIENCE HIGHLIGHTS

The Office of Science posted new highlights between 11/09/2020 and 11/22/2020.

Industrial biotechnology hopes to use microbes like bacteria as miniature factories that could convert molecules into desirable products, but designing, building, and optimizing sets of enzymes to accelerate necessary chemical reactions is complex and slow. Scientists from [Northwestern University] and LanzaTech Inc. have developed a framework that will rapidly select from hundreds of enzyme pathways, eliminating the need to use intact cells to facilitate the design of microbial factories.



IN THE NEWS

***Chicago Sun-Times*: Plastic waste problem 'amplified' by the pandemic**

A push to reduce single-use plastic in takeout food packaging in Chicago is on hold. Research director for the Northwestern-Argonne Institute of Science and Engineering Jennifer Dunn considers the impact an increase in takeout during the pandemic could have on the environment.

***Gizmodo:* A dark matter detector based on a wind chime seems just weird enough to work**

A Fermilab theoretical physicist and his colleagues have begun working on a prototype that could one day lead to a detector capable of pinpointing the minute gravitational pull of a particle we can neither see nor feel.

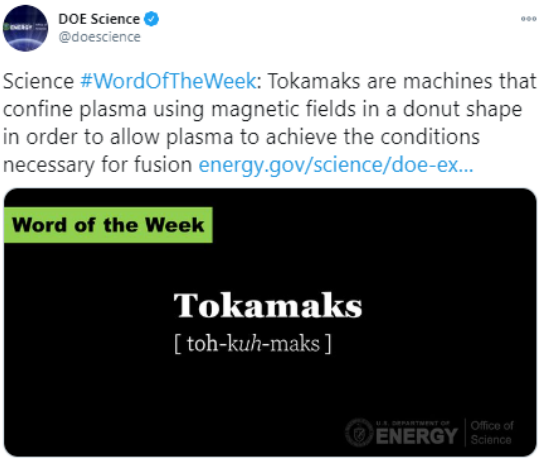
***Seattle Times*: Solar and battery project goes online to provide power for Richland**

A solar panel and battery installation went online last week at a 20-acre site north of downtown Richland, Washington. Pacific Northwest National Laboratory will monitor and analyze data from this project to evaluate the financial benefits of the battery energy storage.

TOP TWEETS

The Office of Science sent out 64 tweets between 11/09/2020 and 11/22/2020.

Here are the two most popular:



BY THE NUMBERS

DOE scientists among world's most cited researchers

Forty-six scientists affiliated with the Department of Energy Office of Science's ten national laboratories have been named among the **2020 Highly Cited Researchers list,** according to Clarivate, a data analytics firm that specializes in scientific and academic research. Clarivate's Web of Science is a scientific publication indexing platform that connects researchers to more than 100 years of academic literature from thousands of journals. These scientists, including seven from **Oak Ridge National Laboratory**, have been involved in the production of multiple highly-cited papers that rank in the top 1% by citations for field and year.

END NOTES

(Virtually) Tour the National Labs

Tour some of the Department of Energy's world-class facilities—without ever leaving your couch! **Oak Ridge National Laboratory** has added 10 virtual tours to its campus map, each with multiple views to show floor plans and pop-out informational windows deliver facts, videos, graphics and links to other related content. The Brookhaven National Laboratory YouTube channel will take you on tours of the NSLS-II, RHIC, and CFN user facilities. These virtual tours allow you to explore where DOE science happens from anywhere in the world.

Please see the Communique archive on Energy.gov for past issues.

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