



U.S. DEPARTMENT OF
ENERGY

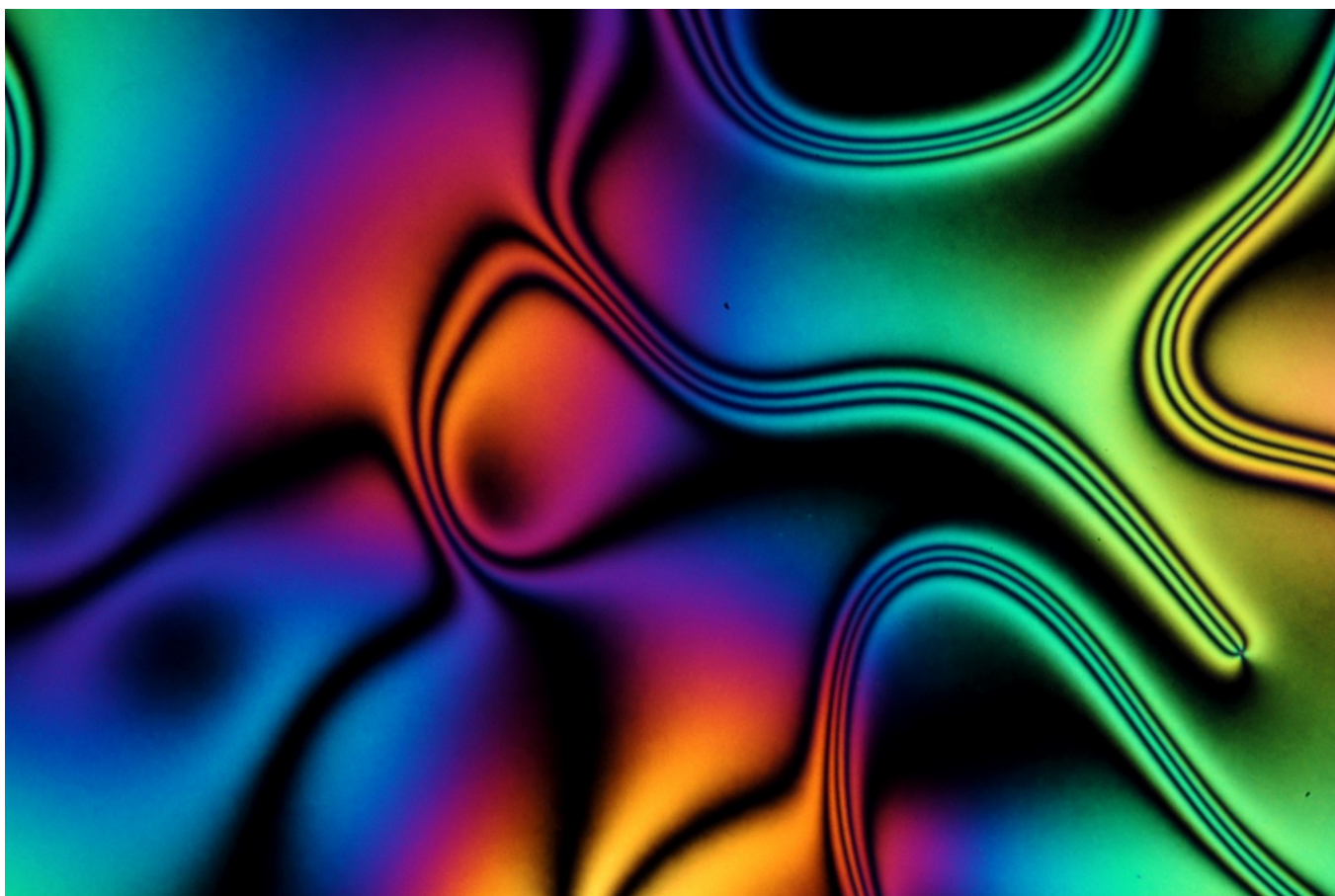
COMMUNIQUE

Office of Science

27 July 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.*

Communique will be taking a summer hiatus for the month of August. Our next edition will be out Monday, September 14th.



Liquid Crystals Create Easy-to-Read, Color-Changing Sensors

Chameleons are famous for their color-changing abilities. Depending on their body temperature or mood, their nervous system directs skin tissue that contains nanocrystals to expand or contract, changing how the nanocrystals reflect light and turning the reptile's skin a rainbow of colors. Inspired by this, scientists at the University of Chicago have developed a way to stretch and strain liquid crystals to generate different colors. This technology could be applied in smart coatings, sensors, and wearable electronics.

[Click here to read more about how UChicago scientists determined the fundamentals for a color-changing sensing system.](#)

NEWS CENTER

The Office of Science posted 67 news pieces between 7/13/2020 and 7/26/2020, including 32 university articles and 31 articles from the labs and user facilities.

Scientists at [SLAC National Accelerator Laboratory](#) have observed how iron's structure changes during a rapid impact from a laser pulse. This research could offer insights into planet formation and inform the design of resilient materials.

Researchers at [Argonne National Laboratory](#) used the Theta supercomputer to carry out engine simulation, providing data that could help automotive manufacturers design more efficient engines.

A [Berkeley Lab](#) team is applying machine learning to a library of biomedical information to accelerate discoveries in the fight against COVID-19.

Researchers at [UC Davis](#) have produced a detailed micro-CT scan of the inside of a tsetse fly, an insect that carries parasites that cause sleeping sickness in humans and nagana in cattle in sub-Saharan Africa.

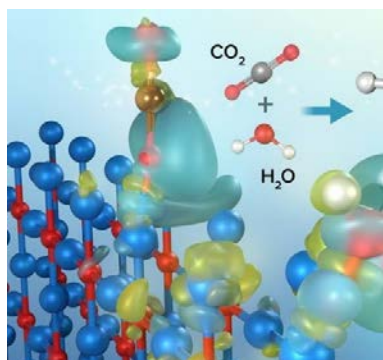
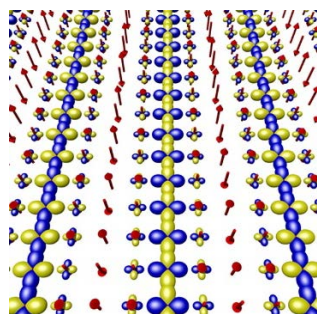
With data from a NASA mission, researchers from Johns Hopkins and [Durham University](#) have found a way to measure the lifetime of a neutron from space, potentially paving the way for discoveries about the early universe.

A team from [MIT](#) designed a device that works like a brain synapse, efficiently mimicking brain processes for artificial intelligence systems called neural networks.

SCIENCE HIGHLIGHTS

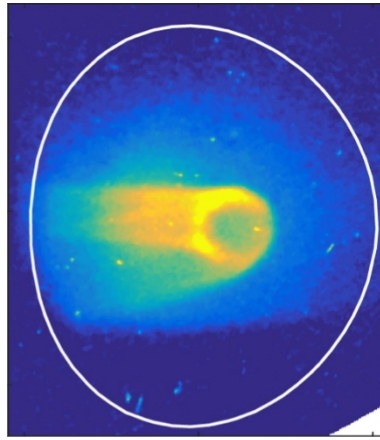
The Office of Science posted ten new highlights between 7/13/2020 and 7/26/2020.

Scientists from [Brookhaven National Laboratory](#) have confirmed a long-standing theory about high-temperature superconductors. Because of their efficiency, these materials could revolutionize energy transmission and electronics.



Scientists from [Argonne National Laboratory](#) have found a catalyst that transforms carbon dioxide and water into liquid fuel in the presence of light. The research is an important step in the design of photocatalysts and the efficient conversion of carbon dioxide into liquid fuels

Scientists at the [DIII-D National Fusion Facility](#) have for the first time studied the internal structure and stability of high-energy runaway electron beams in a tokamak. The finding could provide a way to control the damaging potential of these beams and could contribute to future power production using tokamak fusion power plants.



IN THE NEWS

[Washington Post: Blistering Heat and Humidity to Intensify in Central, Eastern U.S. This Weekend](#)

As part of a forum led by Climate Nexus, Berkeley Lab's Michael Wehner spoke about the role of climate change in intensifying heat waves.

[Wall Street Journal: In Push for Better Cybersecurity, U.S. Energy Department Outlines a National Quantum Internet](#)

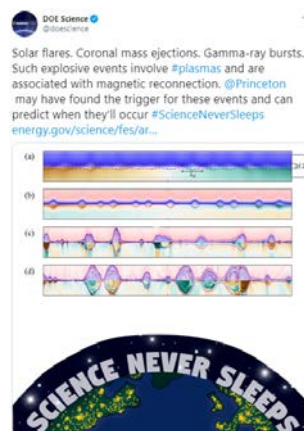
An article about the recently unveiled Blueprint for Quantum Internet mentioned the existing quantum link between Fermilab, the University of Chicago, and Argonne National Laboratory.

[BBC: The Revolutionary Boat Powered By The Ocean](#)

The research of Rob Cavagnaro, a mechanical engineer at the Marine Sciences Laboratory at Pacific Northwest National Laboratory, is mentioned in this piece about the future of public sea transport in the Philippines.

TOP TWEETS

The Office of Science sent out 60 tweets between 7/13/2020 and 7/26/2020. Here are our two most popular from the past two weeks:



BY THE NUMBERS

2020 Office of Science Distinguished Scientists Fellows



Three scientists from the Department of Energy's national laboratories have been named 2020's Office of Science **Distinguished Scientist Fellows** for their breadth and depth of scientific expertise. Jacqueline Chen from Sandia National Laboratories, Cynthia Keppel from Thomas Jefferson National Accelerator Facility, and James De Yoreo from Pacific Northwest National Laboratory will each receive \$1 million over three years to be devoted to a project or projects of their choosing.

END NOTES

DOE Unveils Blueprint for the Quantum Internet



In a press conference at the University of Chicago, the Department of Energy unveiled a report that lays out a blueprint strategy for the development of a [national quantum internet](#), bringing the United States to the forefront of the global quantum race and ushering in a new era of communications. The strategy lays out four priority research opportunities:

1. Providing the foundational building blocks for quantum internet;
2. Integrating quantum networking devices;
3. Creating repeating, switching, and routing technologies for quantum entanglement;
4. Enabling error correction of quantum networking functions.

DOE's 17 National Laboratories will serve as the backbone of the coming quantum internet, which will rely on the laws of quantum mechanics to control and transmit information more securely than ever before.

Follow the Office of Science on social media!



This format is not compatible with forwarding. If you would like to forward this message, please use the attached PDF copy. Please see the [Communique archive](#) on Energy.gov for past issues.

No. 40: 27 July 2020