



U.S. DEPARTMENT OF
ENERGY

COMMUNIQUE

Office of Science

28 September 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.*



First Person Science: Moh El-Naggar on Electric Bacteria

In the First-Person Science series, scientists describe how they made significant discoveries over years of research. Moh El-Naggar is a professor in physics, astronomy, and chemistry at the University of Southern California Dornsife. He was also selected for the Presidential Early Career Award for Scientists and Engineers.

What really drives me are questions of limits. As a physicist working in biology, I wonder, ‘What’s the maximum thing possible that biology can do? What is the most you can get out of this system? How complex can this environment be and biology is still able to work?’ I think the best way to learn about the physics of anything, including biology, is to ask questions about limits.

[Click here to read more about Moh El-Naggar’s work on “electric bacteria.”](#)

NEWS CENTER

The Office of Science posted 42 news pieces between 9/14/2020 and 9/27/2020.

In preparation for the international Deep Underground Neutrino Experiment, scientists at [Fermilab](#) have established a new testing facility for detectors: ICEBERG.

Researchers from [Princeton University](#) have invented a new method to turn on and off a key mechanism in *E. coli* bacteria using light.

A team of scientists at [Oak Ridge National Laboratory](#) is using neutron reflectometry to understand how COVID-19 works at the molecular level.

Researchers from the [University of Chicago](#) used computer simulations to explain how a pre-existing drug may be effective in counteracting COVID-19.

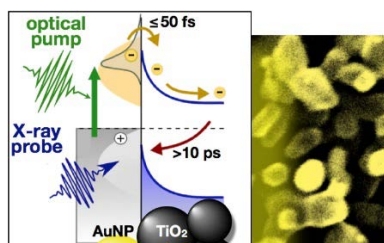
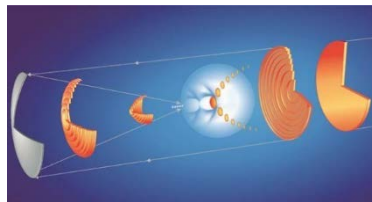
An international team including scientists from [Brookhaven National Laboratory](#) has published calculations refining comparisons of matter and antimatter.

Researchers at [Oregon State University](#) have found a new type of electrocatalyst, making a key advance in the pursuit of converting carbon dioxide into reusable forms of carbon.

SCIENCE HIGHLIGHTS

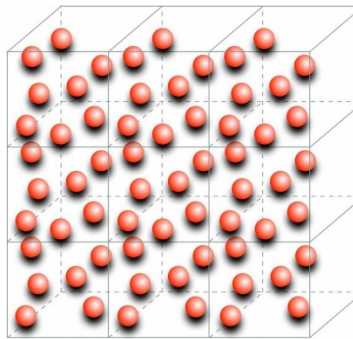
The Office of Science posted 13 new highlights between 9/14/2020 and 9/27/2020.

Scientists from the [University of Rochester](#) have found a new paradigm in particle accelerator design that may pave the way to dramatically smaller accelerators.



Scientists at [Berkeley Lab](#) have found a way to count electrons as they transfer between some nanoparticle materials that show promise for solar fuels.

To predict the properties of matter in a neutron star, physicists from [Argonne National Laboratory](#) have considered a theoretical model that consists of an infinite system of pure neutrons that interact by the strong nuclear force.



IN THE NEWS

[Wired: To make fairer AI, physicists peer inside its black box](#)

After repurposing facial recognition and deepfake technology to study galaxies and the Higgs boson, physicists are considering their role in shaping the responsible use of artificial intelligence. This article quotes Fermilab's Brian Nord about AI functions.

[Vox: This theory might explain "Covid toes" and other mysteries of the disease](#)

This article about "bradykinin storms," a potential explanation to the wide-ranging effects of COVID-19, references Oak Ridge National Laboratory's research using the Summit supercomputer to study the biological impacts of the disease.

[Los Angeles Times: Elon Musk expected to tout 'million-mile' battery. Here's what that means](#)

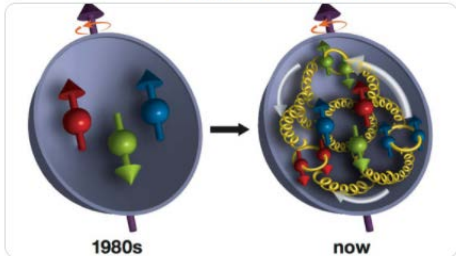
Berkeley Lab's Vince Battaglia talks about the science behind battery testing and the potential life of batteries with newer technology in this article.

TOP TWEETS

The Office of Science sent out 45 tweets between 9/14/2020 and 9/27/2020.
Here are the two most popular:

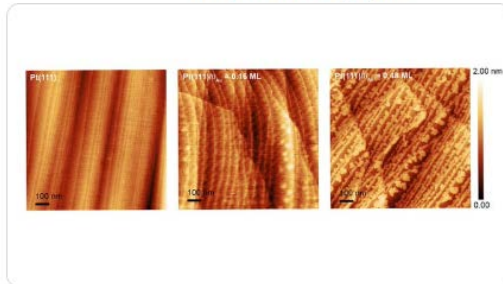
 DOE Science
@doescience

Protons always have "spin." But where does it come from and how can you calculate it? Scientists use [@ENERGY's](#) unique capabilities at [@JLab_News](#) and [@BrookhavenLab](#) to explore this fundamental phenomenon, hoping to find answers to these questions and more [energy.gov/science/articl...](#)



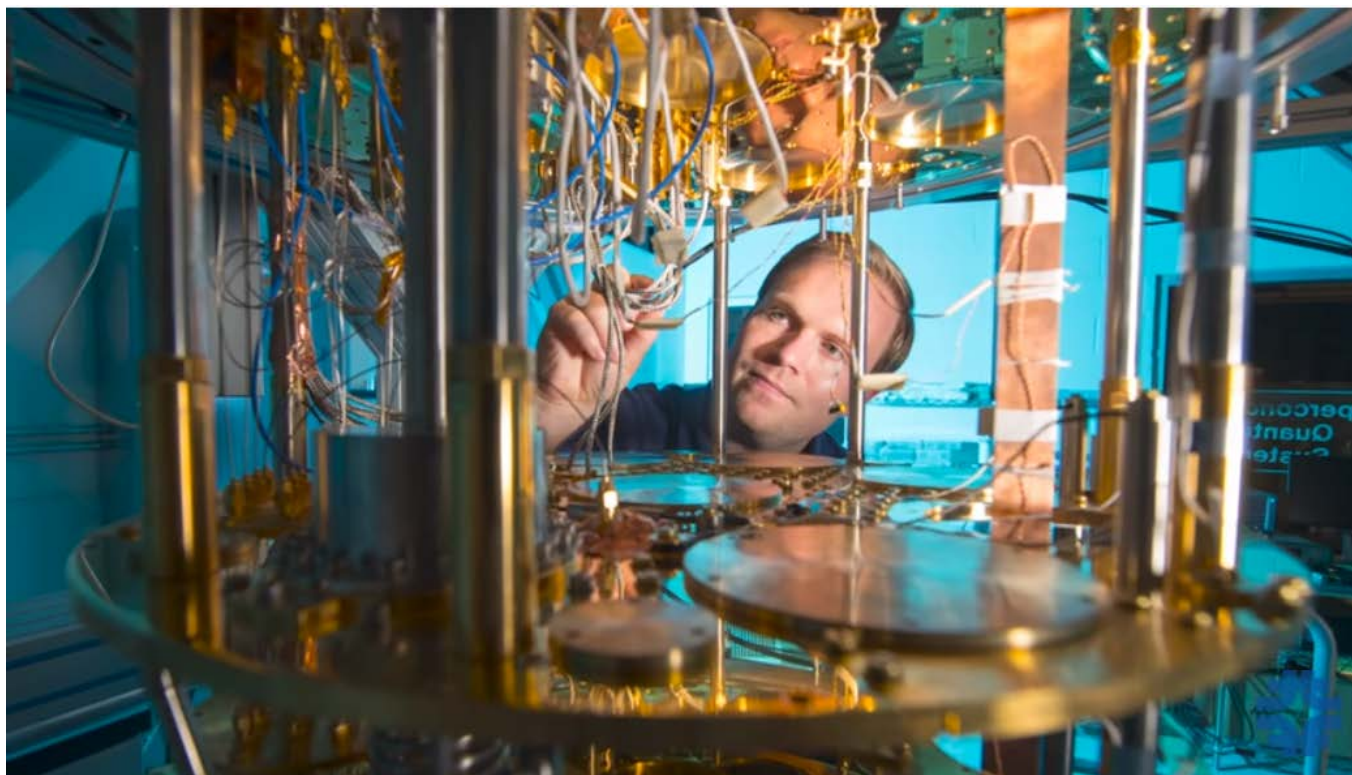
 DOE Science
@doescience

A team at [@argonne](#) has made atomic-level insights that may help reduce degradation in fuel cells and extend their lifetime [anl.gov/article/highpr...](#)



BY THE NUMBERS

Video: Fermilab's Superconducting Quantum Materials and Systems Center



One of the Department of Energy's five new Quantum Information Science Research Centers, the [Superconducting Quantum Materials and Systems Center](#) at Fermilab will involve 20 partner institutions to bring about transformational advances in quantum information science. With \$115 million over five years, the Center looks to build and deploy quantum computers based on superconducting technologies.

END NOTES

Facility for Rare Isotope Beams



The Department of Energy's newest user facility, the [Facility for Rare Isotope Beams](#) (FRIB), will enable scientists to make discoveries about the properties of rare isotopes, nuclear astrophysics, fundamental

interactions, and the potential applications of this research for society—including in medicine, homeland security, and industry. Located at Michigan State University, FRIB builds upon the expertise of the National Superconducting Cyclotron Laboratory to join the Department of Energy’s family of “discovery machines,” elevating our understanding of nuclei to new levels.

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. 42: 28 September 2020