U.S. DEPARTMENT OF ENERGY
Office of Science

COMMUNIQUE

1 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.*

'Groupie' Galaxies Orbiting Milky Way Tell Us About Dark Matter, How Galaxy Formed

Two new studies have revealed more and more about these 'groupie' galaxies around the Milky Way, including evidence that large satellite galaxies can bring their own small satellites with them when they are sucked into orbit around the Milky Way. Scientists have also extracted information about the halos of dark matter that surround these galaxies, as well as a prediction that our home galaxy should host an additional 100 or so very faint satellite galaxies awaiting discovery. The research, co-led by University of Chicago Asst. Prof. Alex Drlica-Wagner in collaboration with scientists from SLAC National Accelerator Laboratory and the University of Wisconsin-Madison, was published in the April edition of *The Astrophysical Journal*. It relies heavily on data from the Dark Energy Survey, a groundbreaking effort to map the skies led by Fermi National Accelerator Laboratory and the University of Chicago.

Click here to read more about the arrangements of galaxies around the Milky Way and what they can tell us about dark matter.

NEWS CENTER

The Office of Science posted 59 news pieces between 5/18/2020 and 6/1/2020, including 30 university articles and 27 pieces from the labs and user facilities.

Berkeley Lab scientists are applying machine learning methods to health and environmental datasets, combined with climate models and seasonal forecasts, to determine whether COVID-19 will follow a seasonal pattern.

Researchers at the Advanced Photon Source have used X-rays to analyze fossilized beetle wings, gaining insight into how the insects evolved tiny crystalline structures that gave them iridescent colors.

Researchers at Pacific Northwest National Lab are studying the protein structures of pathogens to pave the way for effective treatment and stay ahead of antibiotic resistance.

Researchers have used multiple supercomputers, including one at the San Diego Supercomputer Center, to study zirconia ceramics, materials that have been useful for applications ranging from dental implants to jet engine parts.

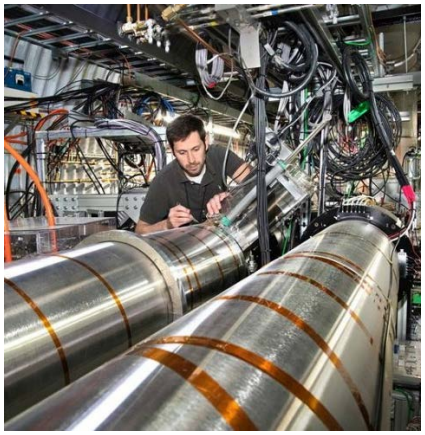
University of Miami scientists have uncovered a new connection between tropical weather events and U.S. rainfall during El Niño years, helping to better understand the Earth's weather and climate systems.

Researchers at the University of Illinois at Urbana-Champaign have developed a fast, efficient way to identify the most promising varieties of microbes valuable to renewable fuels and bioproducts.

SCIENCE HIGHLIGHTS

The Office of Science posted new highlights spotlighting NP between 5/18/2020 and 6/1/2020.

Scientists at Brookhaven Lab have used bunches of electrons to cool beams of gold ions in the Relativistic Heavy Ion Collider (RHIC). This new technique will maximize collision rates at RHIC while using the lowest energies available, giving scientists more data in conditions essential to exploring how nuclear matter exists in different phases.



IN THE NEWS

Wired: This Lab 'Cooks' With AI to Make New Materials

In this story about a University of Toronto lab working to recycle carbon dioxide, Berkeley Lab's Kristin Persson, a physicist who began the Materials Project database in 2011, talks about the role of computational techniques going from niche applications to driving innovation in materials discovery.

Gizmodo: Why the U.S. Is Betting It All on the Most Puzzling Particle in the Universe

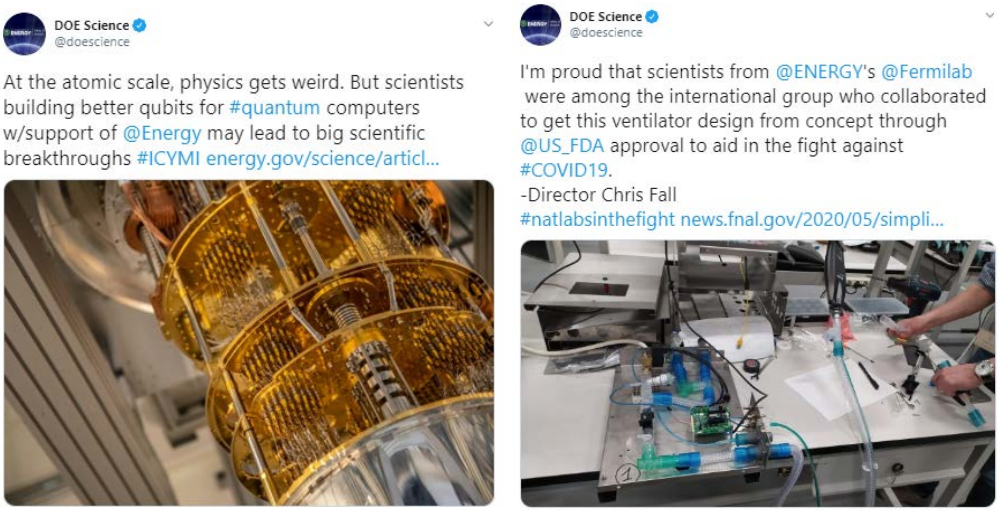
Covering the history of neutrino physics and the future, this article focuses on the Deep Underground Neutrino Experiment hosted by Fermilab.

Newsday: Inside Brookhaven National Lab's COVID-19 Quest

This video summarizes Brookhaven Lab's X-ray crystallography and computational efforts aimed at discovering drugs to fight SARS CoV-2.

TOP TWEETS

The Office of Science sent out 52 tweets between 5/18/2020 and 6/1/2020. Here are our two most popular from the past two weeks:

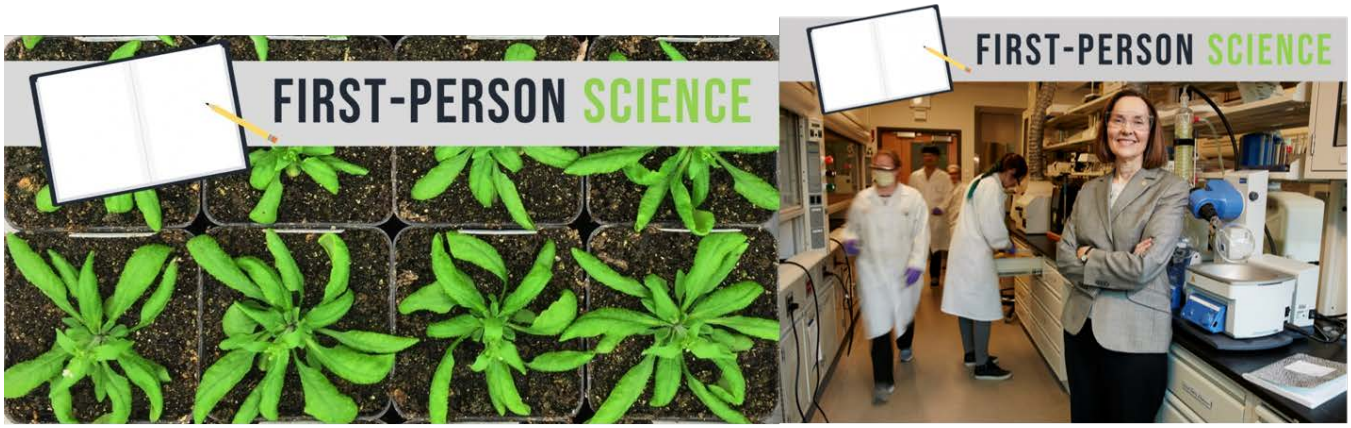


BY THE NUMBERS

The DOE Office of Science Early Career Research Program provides an annual funding opportunity for researchers at universities and national laboratories. Established in 2010, this program supports the individual research programs of outstanding scientists early in their careers. In an ongoing series of profiles, the Office of Science is looking back on what the Early Career Research Program helped the inaugural class of awardees accomplish.

END NOTES

First-Person Science



In the Office of Science's new series, First-Person Science, scientists describe how they made significant discoveries over years of research. The first two scientists featured are Christoph Benning, the director of the Michigan State University-Department of Energy Plant Research Laboratory, and Esther Takeuchi, a professor at Stony Brook University, a Chief Scientist in the Energy and Photon Sciences Directorate at Brookhaven Lab, and the director of the Center for Mesoscale Transport Properties, a Department of Energy Office of Science Energy Frontier Research Center.

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No. 36: 1 June 2020