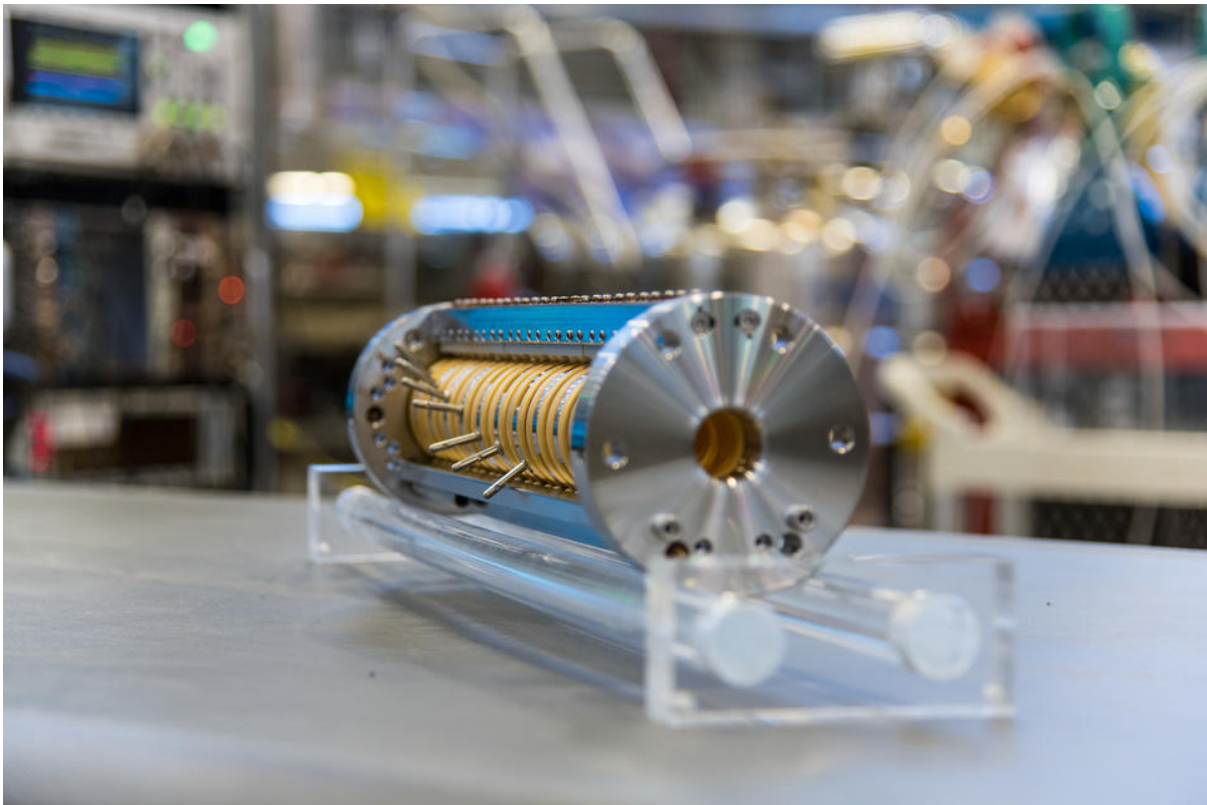




*Communique* provides a biweekly review of recent Office of Science Communications and Public Affairs work, including feature stories, science highlights, social media posts, and more. This is only a sample of our recent work promoting research done at universities, national labs, and user facilities throughout the country. *Please note that some links may expire after time.*



## The Mystery of the Neutron Lifetime

Nine seconds. An eternity in some scientific experiments; an unimaginably small amount in the grand scheme of the universe. And just long enough to confound nuclear physicists studying the lifetime of the neutron. The neutron is one of the building blocks of matter, the neutral counterpart to the positive proton. Like many other subatomic particles, the neutron doesn't last long outside of the nucleus. Over the course of about 15 minutes, it breaks apart into a proton, an electron, and a tiny particle called an anti-neutrino. But how long the neutron takes to fall apart presents a bit of a mystery.

[Click here to read more about how researchers are working to nail down the duration of the neutron lifetime.](#)

# NEWS CENTER

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The Office of Science posted 215 news pieces between 7/27/2020 and 9/13/2020.

With help from researchers from [SLAC National Accelerator Laboratory](#), scientists from the University of Alberta have found that a drug used to treat coronavirus infections in cats may be effective against SARS-CoV-2.

With a comprehensive analysis of the largest three-dimensional map of the universe ever created, astrophysicists are using data from the [Sloan Digital Sky Survey](#) to fill in 11 billion years of the universe's expansion history.

Scientists at [Oak Ridge National Laboratory](#) and Ohio State University have discovered a microbial pathway that produces ethylene, potentially providing an avenue for biomanufacturing a common component of plastics.

A team of scientists led by [UC Riverside](#) has constructed a model that reproduces photosynthetic light harvesting, laying out the next phase of research on how plants transform light into chemical energy.

Physical scientists at the [National Energy Research Scientific Computing Center](#) are turning to artificial intelligence to improve earth systems modeling.

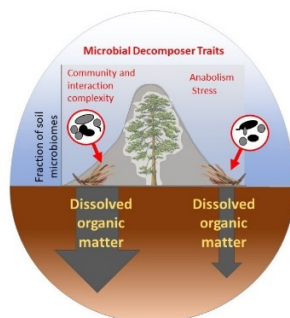
Researchers from [MIT](#) have found that, instead of hastening the degradation of certain alloys, radiation actually improves their resistance, identifying materials that may be useful in fission or fusion reactors.

## SCIENCE HIGHLIGHTS

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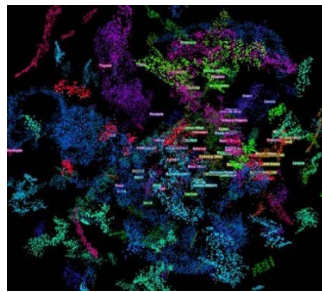
The Office of Science posted 13 new highlights between 7/27/2020 and 9/13/2020.

Scientists from the [University of Connecticut](#) and Pacific Northwest National Laboratory have developed artificial intelligence models to automate the detection of defects in alloys used in nuclear fusion reactors.



Researchers from [Los Alamos National Laboratory](#) sampled soils and measured the products of microbes. Their research suggests that the makeup of a soil microbiome is critical to the fate of carbon in that soil.

Scientists at [Oak Ridge National Laboratory](#) have developed an artificial intelligence-based natural language processing tool to better leverage data from complex cancer pathology reports for research.



## IN THE NEWS

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### [Washington Post: California Endures Record-Setting ‘Kiln-Like’ Heat as Fires Rage, Causing Injuries](#)

In this article about the recent heat wave and wildfires in California, Berkeley Lab’s Michael Wehner, who researches extreme weather events, spoke about the effect of climate change on extreme heat waves in California and these trends as the planet continues to warm.

### [Wall Street Journal: White House Announces \\$1 Billion Plan to Create AI, Quantum Institutes](#)

This article about the recently announced Quantum Information Science Research Centers mentions that the centers will be hosted at Argonne, Brookhaven, Oak Ridge, Fermilab, and Lawrence Berkeley National Laboratories.

### [Vice: Particles From Space Are Messing With Our Quantum Computers, Scientists Discover](#)

Researchers from Pacific Northwest National Laboratory and the Massachusetts Institute of Technology have found that natural radiation has the potential to interfere with quantum computers.

## TOP TWEETS

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The Office of Science sent out 202 tweets between 7/27/2020 and 8/13/2020.

Here are the two most popular:



# BY THE NUMBERS

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## 2020 Ernest Orlando Lawrence Award Nominations Open



The [Ernest Orlando Lawrence Award](#) is bestowed by the Secretary of the Department of Energy to mid-career scientists and engineers in recognition of exceptional scientific, technical, and/or engineering achievements. Each Lawrence Award category laureate receives a citation from the Secretary of Energy, a medal bearing Lawrence's likeness, and a \$20,000 honorarium. The Lawrence Award is given in each of the following nine categories:

- Atomic, Molecular, and Chemical Sciences
- Biological and Environmental Sciences
- Computer, Information, and Knowledge Sciences
- Condensed Matter and Materials Sciences
- Energy Science and Innovation
- Fusion and Plasma Sciences
- High Energy Physics
- National Security and Nonproliferation
- Nuclear Physics

Nominations and all supporting materials are due by Thursday, October 1, 2020.

## END NOTES

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[Video: Berkeley Lab Aerial Tour](#)



Lawrence Berkeley National Laboratory,  
or Berkeley Lab, is situated in the hills to the east of  
the University of California, Berkeley campus.

Tour [Berkeley Lab](#) from above in this video, which uses drone footage taken in 2020. The video shows the historic, domed Advanced Light Source building, the Molecular Foundry, Shyh Wang Hall which houses the National Energy Research Scientific Computing Center supercomputers, the rotating FLEXLAB building, and the Integrative Genomics Building.

Follow the Office of Science on social media!



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