

January 2022 CAB meeting Office of Communication links

Nigel Lockyer

Queen Elizabeth II honors Fermilab Director Nigel Lockyer

<https://news.fnal.gov/2022/01/queen-of-england-honors-fermilab-director-nigel-lockyer/>

Secretary of Energy Jennifer Granholm visits Fermilab

<https://news.fnal.gov/2021/12/secretary-of-energy-jennifer-granholm-visits-fermilab/>

DUNE in the news

DUNE collaboration starts production of components for its gigantic neutrino detector

<https://news.fnal.gov/2021/12/dune-collaboration-starts-production-of-components-for-its-gigantic-neutrino-detector/>

Sam Zeller joins LBNF/DUNE-US as deputy project director for the near detector

<https://news.fnal.gov/2022/01/sam-zeller-joins-lbnf-dune-us-as-deputy-project-director-for-the-near-detector/>

Black Hills Pioneer

Fermilab hosts second public meeting for LBNF/DUNE project

https://www.bhpioneer.com/local_news/fermilab-hosts-second-public-meeting-for-lbnf-dune-project/article_618dea3e-7f9d-11ec-a9ae-9f128f287ee6.html

Fermilab people

Dark Energy Survey director Rich Kron named American Astronomical Society fellow

<https://news.fnal.gov/2022/01/dark-energy-survey-director-rich-kron-named-american-astronomical-society-fellow/>

Fermilab's Alexander Romanenko wins prestigious 2022 particle accelerator award

<https://news.fnal.gov/2022/01/fermilabs-alexander-romanenko-wins-prestigious-2022-particle-accelerator-award/>

News stories

Dark Energy Spectroscopic Instrument (DESI) creates largest 3D map of the cosmos

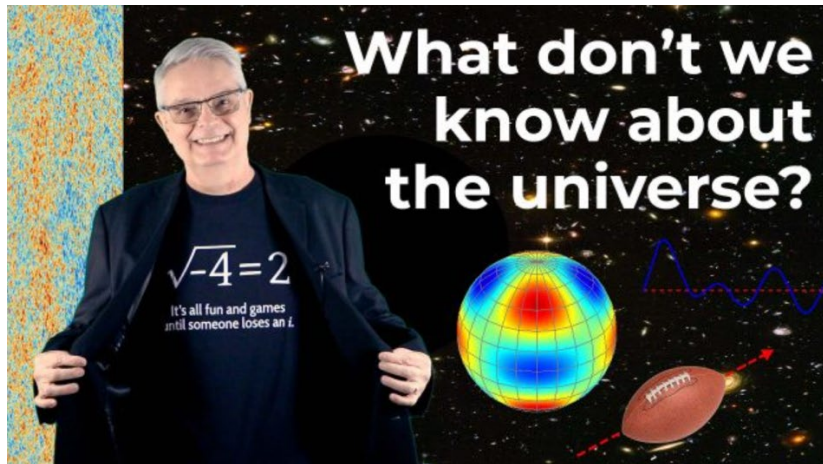
<https://news.fnal.gov/2022/01/dark-energy-spectroscopic-instrument-desi-creates-largest-3d-map-of-the-cosmos/>

Symmetry

Quantum series

<https://www.symmetrymagazine.org/>

Videos



Don Lincoln

Puzzling Mysteries of the Universe

<https://www.youtube.com/watch?v=W3ERzIC2fgM>

How do Fermilab engineers build big science?

At Fermilab, [#engineering](#) and science go hand-in-hand. Engineers from diverse backgrounds work together with talented teams to design, develop, and implement the technologies needed for the next big discovery. Hear from five Fermilab engineers on what it takes to help push the boundaries of scientific research.

<https://www.youtube.com/watch?v=486tO1fXk9g>

Even Bananas

Why do tacos (and the universe) exist? | Even Bananas

We have the good fortune of living in a universe with tacos. But why does the universe have tasty treats, people, stars, and all sorts of matter, instead of nothing at all? In this episode of [#EvenBananas](#), Fermilab's Dr. Kirsty Duffy and neutrino theorist Dr. Pedro Machado explain how understanding neutrinos is crucial to understanding our universe's evolution. Grab your lunch and let's talk about breaking fundamental symmetries.

<https://www.youtube.com/watch?v=t1WI2gobL9E>

Don Lincoln-Dec. 22

Secrets of the Cosmic Microwave Background

The cosmic microwave background is the fossil remnant of the fireball of the Big Bang. Aside from demonstrating that the Big Bang happened, it can tell us how big the universe is and how much dark matter and energy the universe contains. In this video, Fermilab's Dr. Don Lincoln guides you through this interesting topic.

<https://www.youtube.com/watch?v=ri2LIEjXhmE>

Muon g-2 in the News

Boing Boing

Big if true: the boldest scientific discoveries of 2021

<https://boingboing.net/2021/12/27/big-if-true-the-boldest-scientific-discoveries-of-2021.html>

Boing Boing

How to transport a 17-ton, 50-foot wide magnet halfway across the country?

<https://boingboing.net/2021/12/27/how-to-transport-a-17-ton-50-foot-wide-magnet-halfway-across-the-country.html>

Quanta Magazine

2021's biggest breakthroughs in physics

It was a big year. Fermilab discovered possible evidence of new physics with the muon G-2 experiment. Physicists created a time crystal, a new phase of matter that appears to violate one of nature's most cherished laws. And we got a glimpse of an enormous pair of bubbles towering over the Milky Way. Read the articles in full at Quanta: <https://www.quantamagazine.org/the-year-in-physics-20211222/>
<https://www.youtube.com/watch?v=FMM7GWnAv0A>

The Conversation

2021: a year physicists asked, What lies beyond the Standard Model?

Aaron McGowan, Principal Lecturer in Physics and Astronomy at the Rochester Institute of Technology explores research in 2021 in which physicists around the world ran a number of experiments that probed the Standard Model. From Higgs Boson, to Muon g-2 and the restart of the LHC at CERN, McGowan highlights some of the ways the Standard Model fails to explain every mystery of the universe.

<https://theconversation.com/2021-a-year-physicists-asked-what-lies-beyond-the-standard-model-173132>

Internazionale (Italy)

The science news of 2021 according to Science

What muons hide-The muon is behind one of the most important particle physics achievements of this year, according to *Science*.

<https://www.internazionale.it/scienza/claudia-grisanti/2021/12/21/notizie-scienza-2021-science>

Science News

These discoveries from 2021, if true, could shake up science

Science News has compiled discoveries in 2021 dared the world to consider grand possibilities in physics, space and the origins of life. Fermilab's "Misbehaving muons" is among the line-up for 2021.

<https://www.sciencenews.org/article/science-discoveries-2021-big-if-true>

Discover

Exploring New Realms of Physics

In April, an international collaboration of more than 200 scientists, led by Fermilab reported findings that may open a door to physics that transcends the Standard Model. Muon g-2's magnetic moment goes beyond the Standard Model.

<https://www.discovermagazine.com/the-sciences/exploring-new-realms-of-physics>

Chinese Academy of Sciences

"Nature" takes stock of scientific events in 2021

https://www.cas.cn/kj/202112/t20211220_4818849.shtml

Nature

The science news that shaped 2021: Nature's picks

Nature news editors have compiled their list of defining moments in science and research in 2021.

Fermilab's Muon g-2 results announcement was included in the editors' ten picks when it opened the door to major changes in physics.

<https://www.nature.com/articles/d41586-021-03734-6>

Physics World

Physics World announces its finalists for the 2021 Breakthrough of the Year

Fermilab's Muon g-2 announcement is included in an impressive listing of science breakthrough finalists from Physics World. The collaboration is being recognized for providing further evidence that the measured value of the muon's magnetic moment disagrees with theoretical predictions. Physics World will announce the science breakthrough winner on December 14.

<https://physicsworld.com/a/physics-world-announces-its-finalists-for-the-2021-breakthrough-of-the-year/>

Galileo (Italy)

The most important scientific discoveries of 2021, according to Science

<https://www.galileonet.it/scoperte-scientifiche-2021-science/>

Science

2021 Science Breakthrough of the year

Science declared their winner for breakthrough of the year to AI-driven software that offers insights into basic biology and revealing promising new drug targets. The Muon g-2 story, At last, a crack in particle physics' standard model?, was among the finalists in this impressive listing of science innovations that occurred in 2021.

<https://www.science.org/content/article/breakthrough-2021>

Science

Choose your own breakthrough of the year with Science's 2021 poll

Fermilab's Muon g-2 result announcement is included in Science's Annual People's Choice Award listing of 2021 science breakthroughs. Place your vote through Dec. 6. On Thursday, 17 December, the winner of Science's Breakthrough of the Year award will be announced. Vote today using twitter.

<https://www.science.org/content/article/choose-your-own-breakthrough-year-science-s-2021-poll>

The Naked Scientists (UK)

Finding the fundamentals of matter

Dark Matter. There seems to be no real doubt that it exists, but what it consists of at the particle level, we don't know there are many things about it we don't understand. So, there is something beyond The Standard Model. Hoping to produce new particles directly isn't the only way to look for them. Scientists

at Fermilab's g-2 experiment in the US are taking a different approach.

<https://www.thenakedscientists.com/articles/science-features/finding-fundamentals-matter>