



# What's new at Fermilab?

Office of Communication  
July 27, 2023

## Science news

Fermilab-led microelectronics codesign team works to develop a cutting-edge particle detector



Standing around the Dark SRF experiment from left to right are SQMS Center Director Anna Grassellino, SQMS Science Thrust Leader Roni Harnik and SQMS Technology Thrust Leader Alexander Romanenko. Photo: Reidar Hahn, Fermilab

# Science news

## How new atomic clocks could help in search for dark matter — and beyond

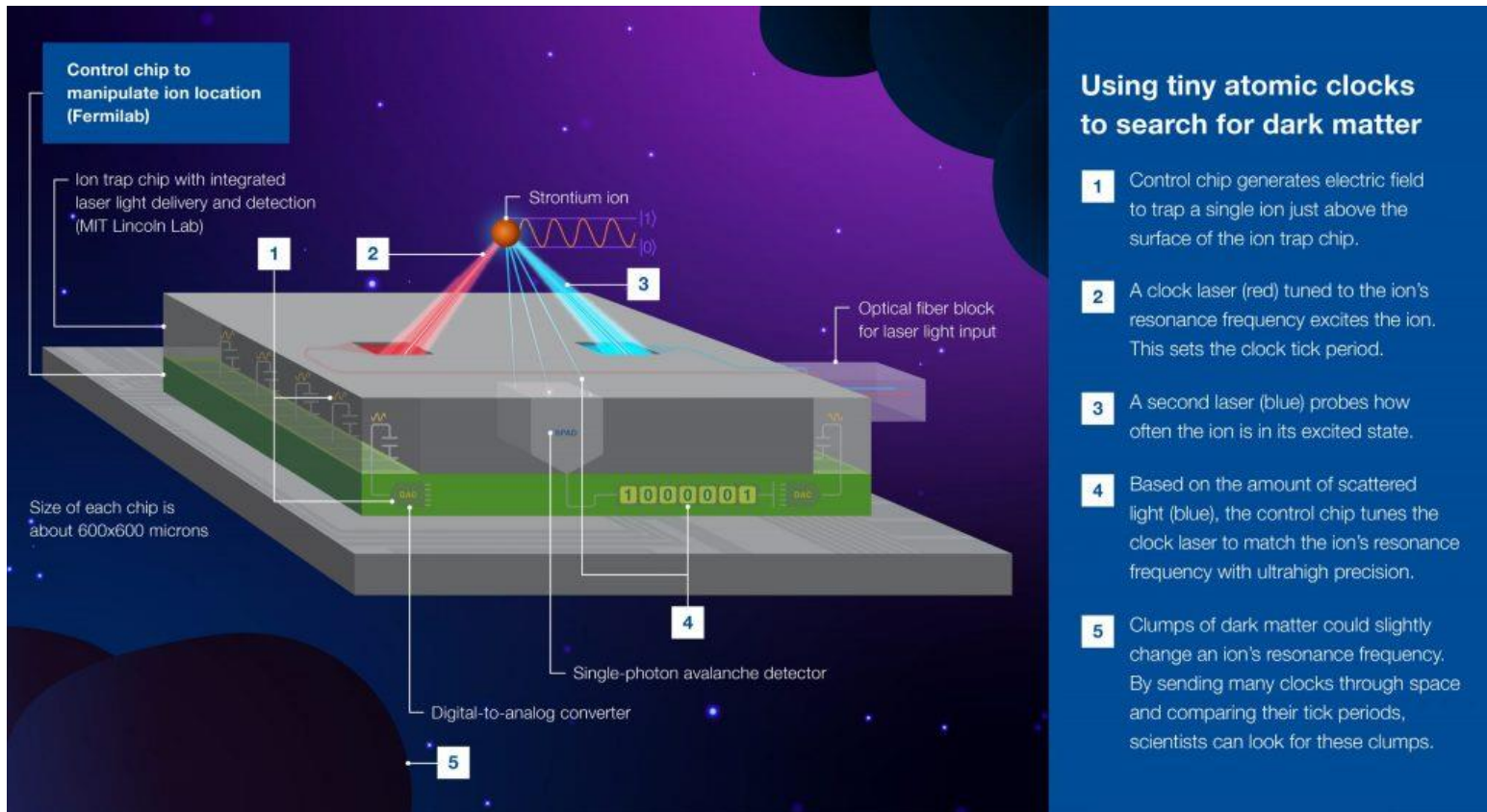


Image: Samantha Koch, Fermilab



# Science News

## DESI early data release holds nearly two million objects



The Dark Energy Spectroscopic Instrument sits atop the Mayall 4-Meter Telescope at Kitt Peak National Observatory. DESI's early data gathered in 2020 and 2021 is now publicly available. Credit: Marilyn Sargent/Berkeley Lab

# News

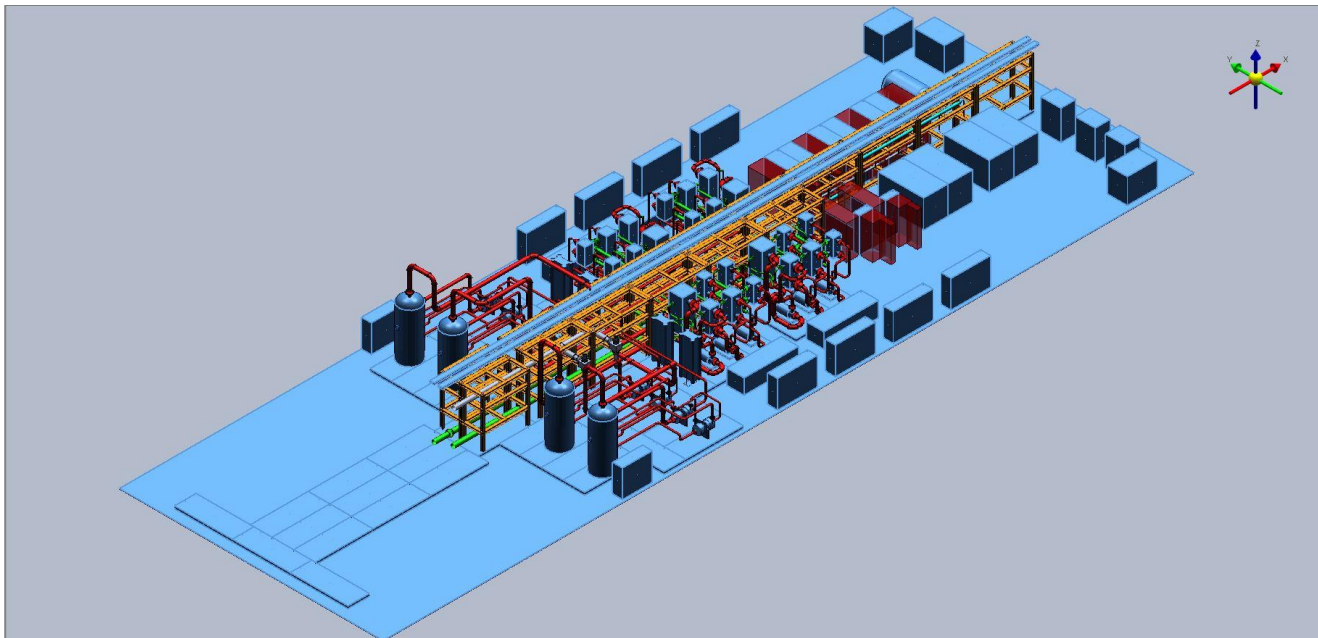
## SAGE Journey program ignites interest in STEM



SAGE camp first began at SLAC in 2018, with funding from DOE and the Gordon and Betty Moore Foundation. The initial program had 20 participants; it has since expanded to five more national laboratories, serving more than 700 campers in total.

# DUNE update

Contract awarded for acquisition of large cryogenic system for DUNE detectors in South Dakota



Conceptual design of the cryogenic cooling system for the large DUNE detector modules. Image: Air Products

# DUNE update

## LBNF/DUNE gears up for next stage of construction in South Dakota



Since 2021, construction crews in South Dakota have extracted about 550,000 tons of rock. Photo: Ryan Postel, Fermilab



# News and events

Particle Pursuit, a journey of the DUNE experiment

Copy link

## Particle Pursuit: A Journey of the DUNE Experiment

Join us for our first quiz s  CERN, Fermilab and SURF

Watch on  YouTube

On June 6, we hosted a collaborative quiz-show style livestream simultaneously from from Fermilab, CERN and SURF. There have been over 11,000 views to date.



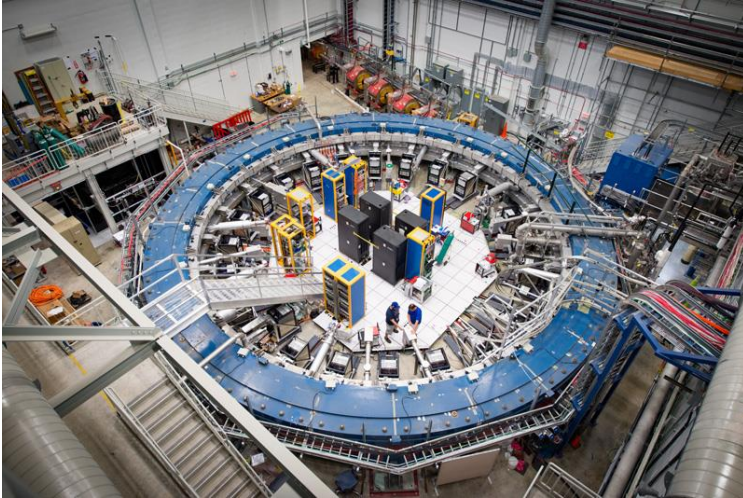
# News and events



Neutrino Day – July 8, 2023



# Fermilab news



*What does the Standard Model predict for the magnetic moment of the muon?*



*Peter Winter, Argonne National Laboratory and Muon g-2 spokesperson*

New results from the Muon g-2 experiment at Fermilab will be unveiled in a scientific seminar on August 10, 2023 at 10:00 am U.S. Central Time.

**Watch live on Fermilab's YouTube channel!**

# Awards



Jonathan Jarvis received the 2023 URA Early Career Award.



Donato Passarelli wins inaugural URA Engineering Award



Patrick Green received this year's URA Doctoral Thesis Award.



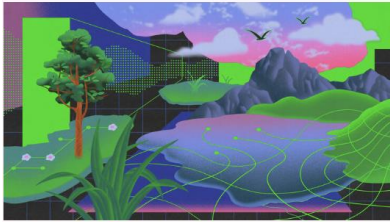
# Awards



The 2023 URA Award recipients



Marco Del Tutto received this year's URA Tollestrup Award



07/18/23

### Will AI make MC the MVP of particle physics?

Particle physicists are building innovative machine-learning algorithms to enhance Monte Carlo simulations with the power of AI.



07/11/23

### The magnet detectives

During a routine test, two HL-LHC magnets unexpectedly flattened. Was it just a coincidence, or did they have a common foe?



06/27/23

### A call to cite Black women and gender minorities

Theoretical astrophysicist Chanda Prescod-Weinstein recently unveiled the Cite Black Women+ in Physics and Astronomy Bibliography.



06/20/23

### India's gem at CERN: Archana Sharma

The first Indian scientist to join CERN was recently recognized with the highest honor of India for overseas citizens.



06/13/23

### Physics on tour

A group called the Big Bang Collective sets up physics discovery stations at rather unexpected venues: music festivals.



06/06/23

### A cosmological headache

For over a century, scientists have wondered what is counteracting the force of gravity in the universe.



05/30/23

### A different way of thinking

Neurodivergent physicists face barriers in STEM, but there are also benefits to being who they are.



05/23/23

### From inventor to entrepreneur

Creating a startup to commercialize technology developed during research is a risky road for physicists and engineers, but the help of experts can improve their chances.

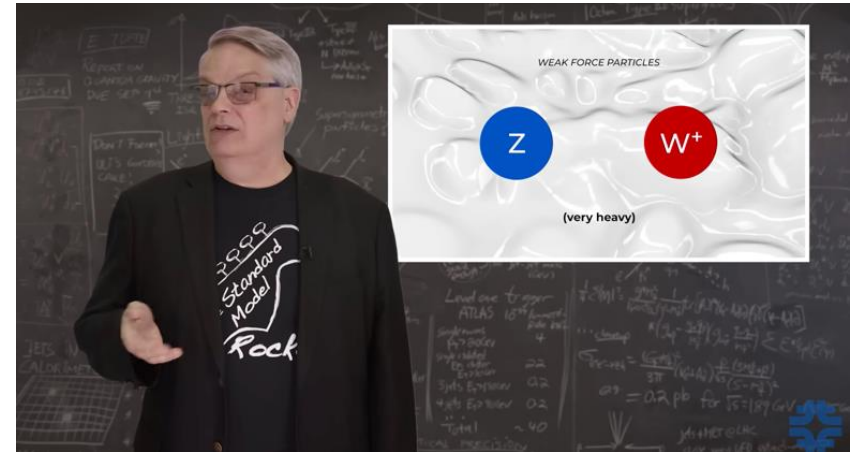
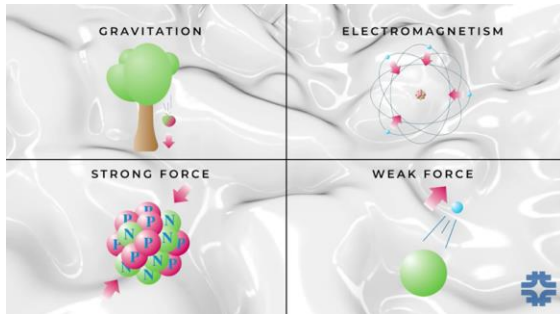


### SAGE Journey program ignites interest in STEM

These SAGE alumni talk about their experiences with a program meant to broaden gender diversity in STEM.

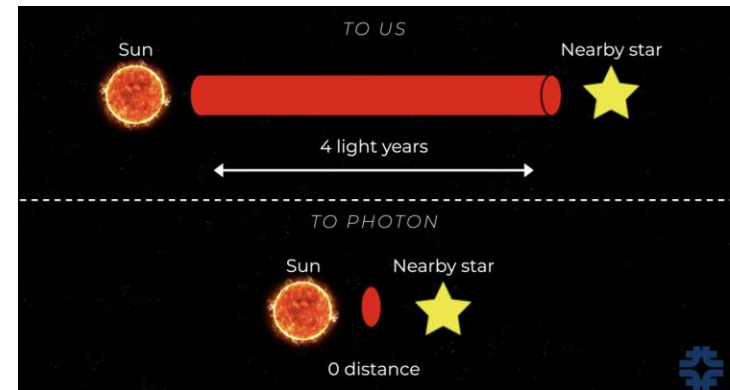
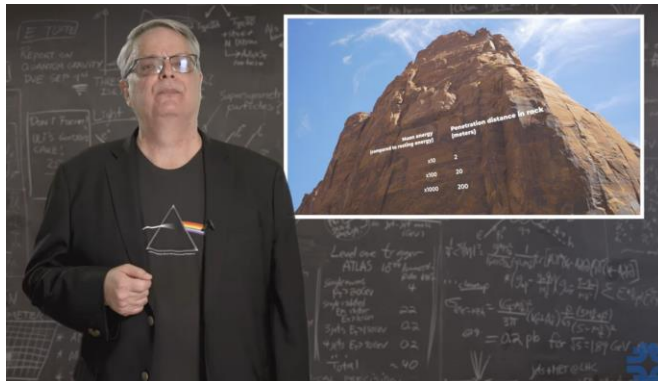
# New Fermilab videos

## Is the weak nuclear force really a force?



## Do photons experience time?

## Cosmic rays and the mummy's curse





# Fermilab in the news



## CERN COURIER | Reporting on international high-energy physics

### Physicist by day, YouTuber by night

5 July 2023

Appearing in robes, alongside pets and sliced into parallel dimensions, Don Lincoln is a well-known face of Fermilab's outreach. He tells the *Courier* how he manages to combine physics and outreach, and why more physicists should take up the challenge.



Best of both worlds Physicist and science

#### What got you into physics?

I have always been interested in what one might call existential questions: those that were originally theological or philosophical, but are now science, such as "why are things the way they are?"

When I was young, for me it was a toss-up: do I go into particle physics or cosmology? At the time, experimental cosmology was less developed, so it made sense to go towards particle physics.

Fermi Research Alliance donates \$20K to Lead park project

### The Muon g-2 experiment: Insights into the unknown

Science | 12th July 2023



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NEWS NETWORK



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# Fermilab in the news



First woman to serve as director of Fermi National Accelerator Laboratory in Batavia



**LIA MERINGA**

First woman to serve as director of Fermi National Accelerator Laboratory in Batavia



STEVE MADIS SCIENCE JUL 16, 2023 9:00 AM

## A Novel Type of Neural Network Comes to the Aid of Big Physics

The machine learning tool is helping physicists with the daunting challenge of analyzing large but nearly empty data sets, like those from neutrino detectors or particle colliders.

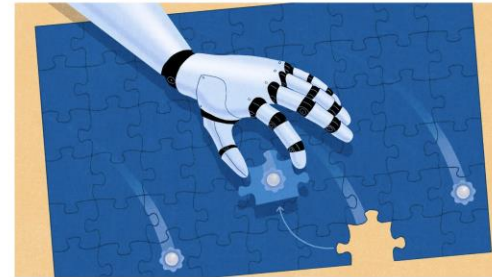
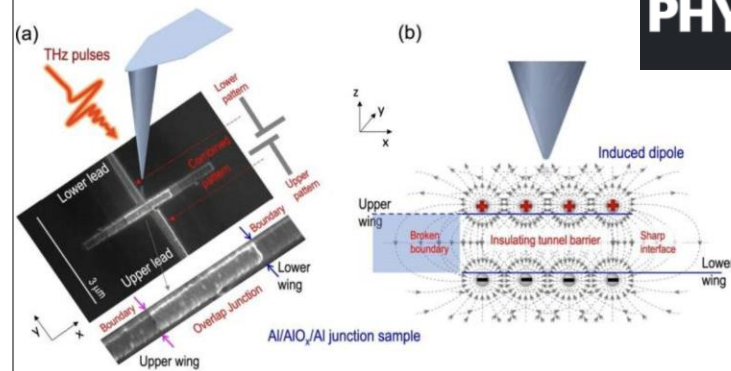


ILLUSTRATION: JAMES STEINBERG/QUANTA MAGAZINE

## New tool helps improve quantum computing circuit component

by Ames National Laboratory



# Questions?