What's new at Fermilab?

Community Advisory Board meeting

May 23, 2024

Office of Communication

News

Fermilab's Bonnie Fleming newly elected to the National Academy of Science

In addition to being elected to NAS,, Fleming was also elected to the American Academy of Arts & Sciences; both are high honors in the scientific community.

Fleming is being recognized for her contributions to neutrino detection technologies that are currently in use at Fermilab and will be central to the upcoming DUNE experiment.

News

Fermilab drives economic growth in Illinois and South Dakota

A new economic impact study shows the growing positive effects on economies in the U.S. through operations conducted by Fermi National Accelerator Laboratory. In Illinois and South Dakota, positive ripple effects from Fermilab spending contributed $1.6 billion in economic output during fiscal year 2022 and supported 7,242

People

Fermilab announces new chief operating officer and chief financial officer

Greg Stephens joined the lab as new chief operating officer May 6, 2024.

Angela Manning-Hardimon joined in April and is the lab's new chief financial officer.

DUNE update

Prep work for DUNE at Fermilab nears completion

Overhead image of preparation for near site facilities along Kirk Rd.

With excavation complete of the colossal caverns in South Dakota for the Deep Underground Neutrino Experiment, crews in our neighborhood began the final phase of site preparation work for construction of the project's near site facilities.

Lab News

Double delivery of baby bison at Fermilab

Bison season began on April 26 when two bison calves were born at Fermilab. As of today, there are 18 bison calves.

Lab News

New collaboration sheds bright light on advancing semiconductor production in the U.S.

Fermilab announced that it has entered into a Cooperative Research and Development Agreement with xLight, Inc. to develop critical components key to semiconductor manufacturing.

New stories in symmetry
dimensions of particle physics

05/07/24

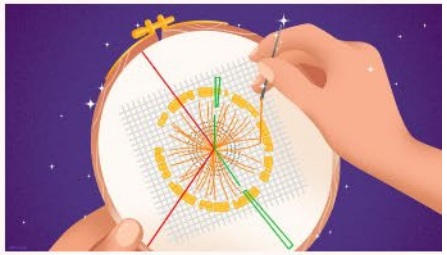
Tomorrow's physics test: machine learning
Machine learning is becoming an essential part of a physicist's toolkit. How should new students learn to use it?

05/06/24

A physicists' guide to the ethics of artificial intelligence
Physics may seem like its own world, but different sectors using machine learning are all part of the same universe.

05/01/24

AI for control rooms
Scientists inside and outside of particle physics and astrophysics are leaning on AI for assistance with complex tasks.

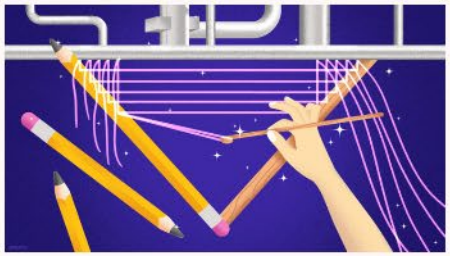


04/30/24

Machine learning and theory
Theoretical physicists use machine-learning algorithms to speed up difficult calculations and eliminate untenable theories—but could they transform what it means to make discoveries?

04/25/24

Machine learning and experiment
For more than 20 years in experimental particle physics and astrophysics, machine learning has been accelerating the pace of science, helping scientists tackle problems of greater and greater complexity.



04/23/24

A collaborative ecosystem
Physicists work with computer scientists in academia and industry to advance machine learning.

04/18/24

Physics vocabulary: AI edition
Don't know your convolutional neural networks from your boosted decision trees? *Symmetry* is here to help.

04/17/24

Symmetry's guide to AI in particle physics and astrophysics
In the coming weeks, *Symmetry* will explore the ways scientists are using artificial intelligence to advance particle physics and astrophysics—in a series of articles written and illustrated entirely by humans.

New Fermilab videos

Even Bananas

Can neutrinos escape a black hole?

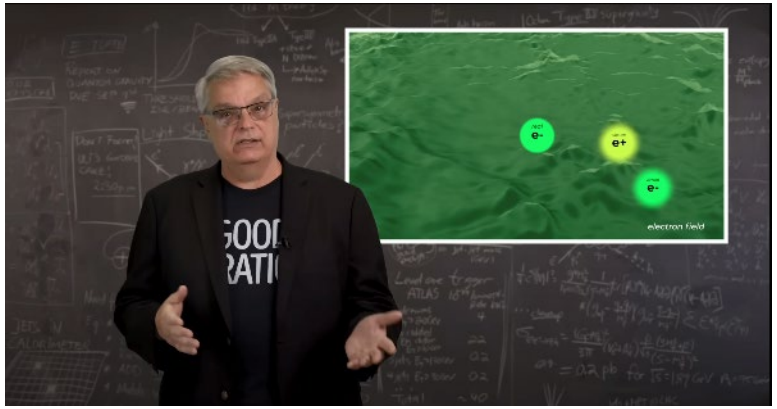
51K + views!

Behind the Science

Inside the Quantum Networking Lab

Don Lincoln

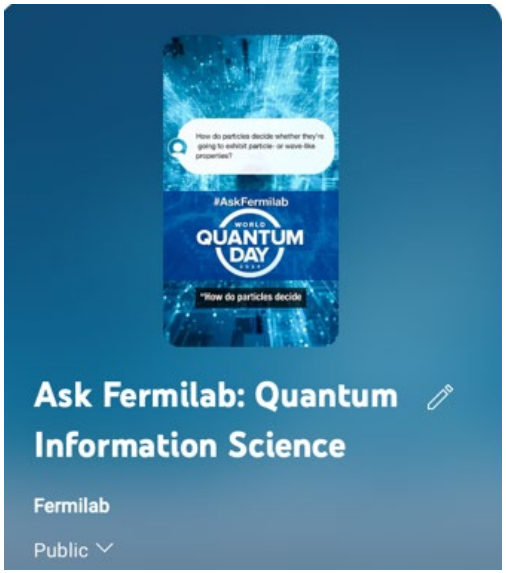
What are virtual particles?

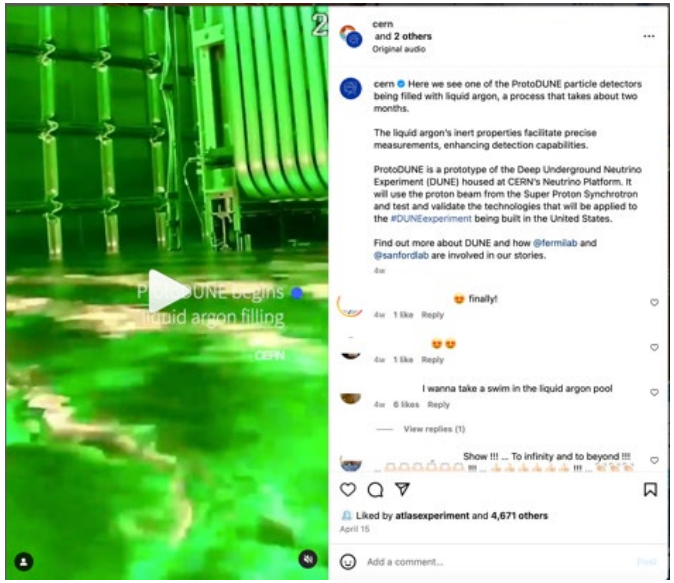


Over 130K views in first month

Social media

- World Quantum Day campaign: over 300k views
- DUNE Black Hole Week tweet: over 31k views on X/Twitter, shared by @NASAUniverse
- ProtoDUNE filling | CERN, DUNEscience and Fermilab Instagram Reel collab: 124k views, over 4,600 likes





Education and public engagement office

- Students reached at Lederman Science Center (Jan - April, 2024): 1,713
- Events through April, 2024:
  - Kick-off of *Fermiside Chats* with STEM enthusiasts across Fermilab
  - *Beyond the Visible: Schingoethe Center at Aurora University collaboration: 280 visitors*
  - Saturday Morning Physics (High School Physics program): 67 graduates and 35 students with perfect attendance
  - Field trips and tours: 1,760 participants (includes adults)

In the news

First bison babies of year born at Fermilab: ‘Calving season is the most rewarding time of the year’

CHICAGO SUN-TIMES

First bison babies of year born at Fermilab: ‘Calving season is the most rewarding time of the year’

Two bison were born Friday at Fermi National Accelerator Laboratory in Batavia. The facility’s 30-acre pasture has long been home to the grazing mammals.

By Kade Heather Apr 26, 2024, 6:47pm CDT

SHARE

Two American bison were born Friday at Fermi National Accelerator Laboratory in west suburban Batavia. | Dan Svoboda/Fermi National Accelerator Laboratory

LATEST STORIES

Advocate Health staff stages protest, alleges disparities and discrimination in response to Gaza crisis

Rare and acute syphilis symptoms increasingly appearing in Chicago patients, study says

In the news

UNIVERSE TODAY

Space and astronomy news

A New Tabletop Experiment to Search for Dark Matter

What is Dark Matter? We don't know. At this stage of the game, scientists are busy trying to detect it and map out its presence and distribution throughout the Universe. Usually, that involves highly-engineered, sophisticated telescopes.

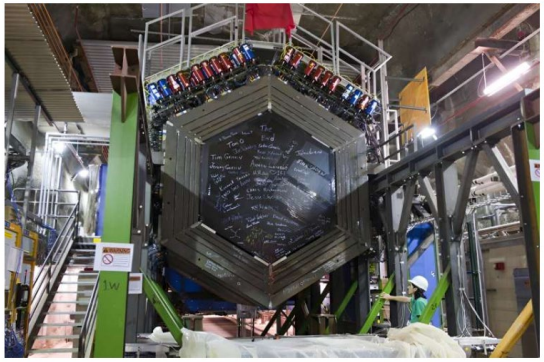
But a new approach involves a device so small it can sit on a kitchen table.

A collaboration between the University of Chicago and the Fermi National A tabletop device called Broadband Reflector Experiment for Axion Detection matter, and its first results are now available in a new paper.

PHYS.ORG

Neutrinos offer a new way to investigate the building blocks of matter

by Shannon Brescher Shea, US Department of Energy



The particle detector used in the MINERvA experiment enabled scientists at DOE's Fermilab to use neu…

Depictions of the Roman goddess of wisdom Minerva show her in flowing robes, wearing a noble war helmet and holding an owl. In contrast, the MINERvA experiment features a huge particle detector with the names of collaborating scientists scrawled on the front of it.

CERN

ABO

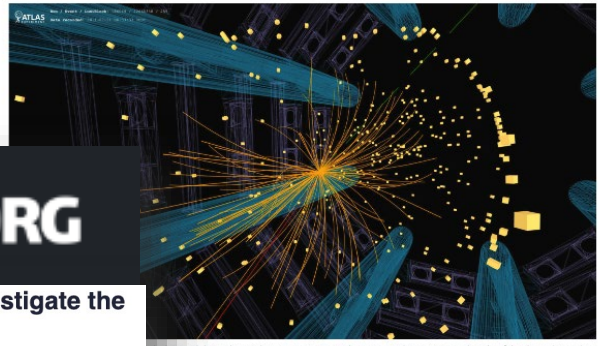
News › News › Topic: Physics

Voir en français

ATLAS provides first measurement of the W-boson width at the LHC

The measurement is the most precise yet made by a single experiment

10 APRIL, 2024 | By ATLAS collaboration



which a candidate W boson decays into a muon and a neutrino. The reconstructed tracks of the charged particles tor are shown as orange lines. The energy deposits in the detector's calorimeters are shown as yellow boxes. The ne. The missing transverse momentum associated with the neutrino is shown as a green dashed line. (Image:

In the news

MAGNETICS
BUSINESS & TECHNOLOGY

Solving the Mystery of One, then Two, Dead Magnets at Fermilab

April 15, 2024 | Editorial Staff | News, Research & Development | Comments Off

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

Not exactly murder is involved but there is plenty of sleuthing and baffling dead-ends in "The Magnet Detectives", a true tale of one, then two, dead magnets amidst some intricate physics at the Fermi National Accelerator Laboratory in Batavia, Illinois. Run by the U.S. Department of Energy, Fermilab is America's particle physics and accelerator laboratory, tasked with bringing the world together to solve the mysteries of matter, energy, space and time.

The fascinating tale begins when the reading on the current-meter was gradually climbing. Until it wasn't. In fact, it suddenly dropped. "Uh-oh," Giorgio Ambrosio remembers thinking. "Houston, we have a problem."

CERN Accelerating science

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News › News › Topic: Experiments

Voir en français

ProtoDUNE's argon filling underway

This will be a significant step towards testing ProtoDUNE for the next era of neutrino research

12 APRIL, 2024 | By Chetna Krishna

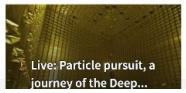
ProtoDUNE begins liquid argon filling (Image:

CERN's Neutrino Platform houses a

ProtoDUNE, which is designed to te

the DUNE experiment in the United

Related Articles



Northern Illinois University

Home / Posts / NIU students, staff, faculty play roles in Fermilab's DUNE experiment

NIU students, staff, faculty play roles in Fermilab's DUNE experiment

May 2, 2024

DeKalb, IL – It sounds like it could be the set-up to a joke: What is the most abundant particle in the universe, is something that hardly anyone outside the scientific community has heard about, and *really, really* needs to be studied?

The answer is neutrinos. And at NIU, they are a serious, if elusive, matter.

Construction workers in South Dakota created two colossal caverns, each

Trillions of neutrinos—infinitesimally small particles—are traveling through your body at this very moment. Learning more about them could shed light on some deep mysteries: Why is our universe composed of matter? How does an exploding star create a black hole? Are neutrinos connected to dark matter or other undiscovered

In the news

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67° Partly Cloudy

Black Hills Pioneer

ELECTION GUIDE

New DUNE model at lab visitor center adds perspective to colossal undertaking

By Mike Ray Sanford Underground Research Facility May 11, 2024 0

The Guardian

The big idea: are we about to discover a new force of nature?

The wealth of emerging evidence suggest that physics may be on the brink of something big

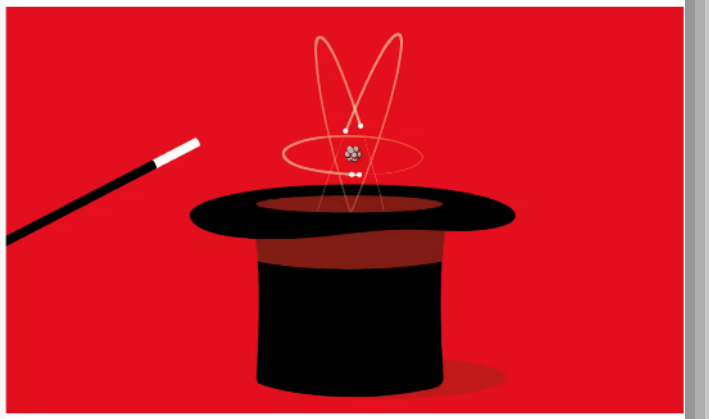

Illustration: Elia Barbieri/The Guardian

Modern physics deals with some truly mind-boggling extremes of scale. Cosmology reveals the Earth as a tiny dot amid an observable universe that is a staggering 93bn light years across. Meanwhile, today's particle colliders are exploring a microcosmic world billions of times smaller than the smallest atom.

Questions?