# What's new at Fermilab?

Office of Communications
Tracy Marc, media relations manager
July 28, 2022

# Lia Merminga hosts Dr. Berhe

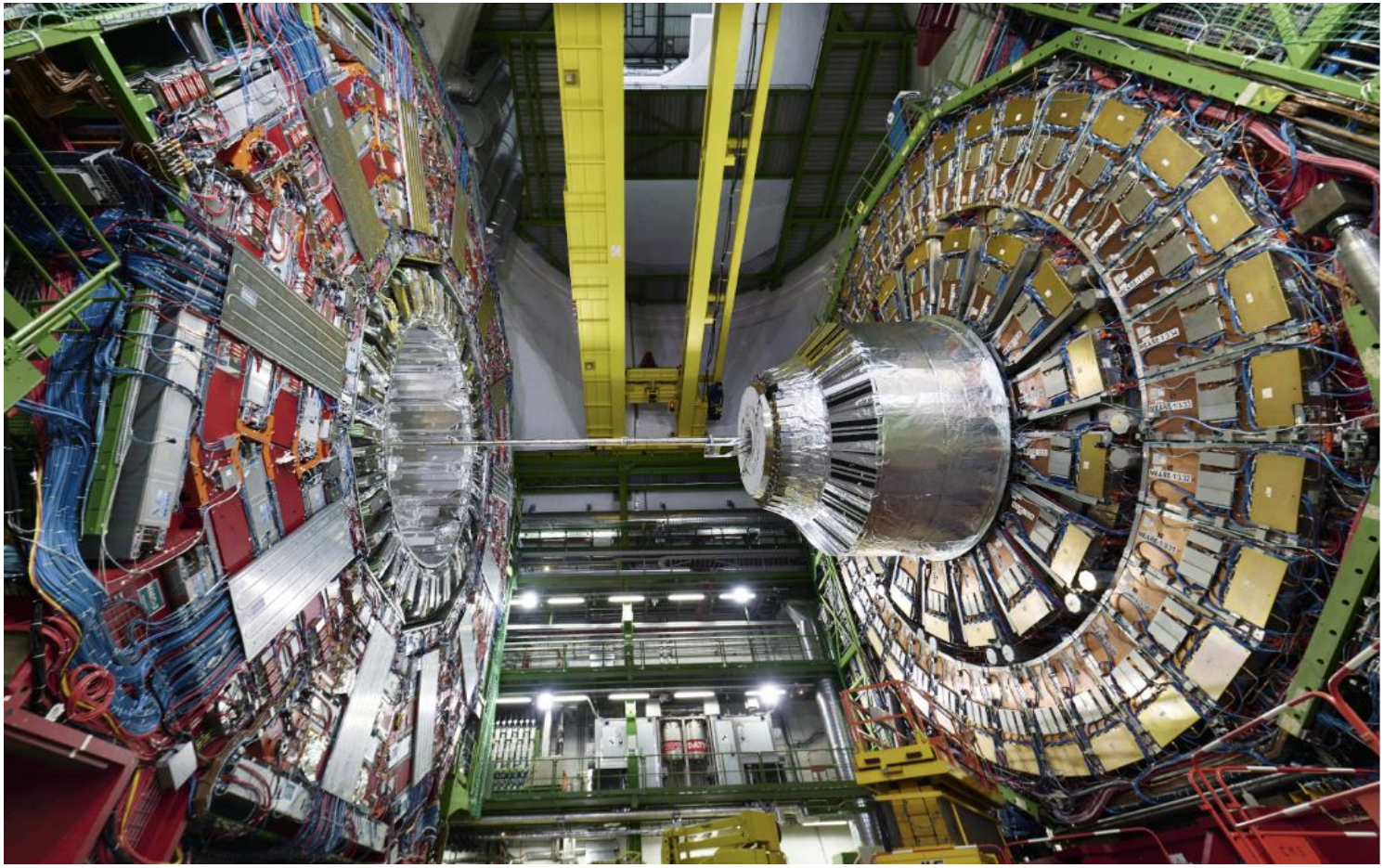
# Fermilab Director Congressional Testimony


Photo credit: House Science Committee Majority

Lia Merminga testified before the U.S. House of Representatives Committee on Science, Space, & Technology in a session titled “Investigating the Nature of Matter, Energy, Space and Time” on behalf of the HEP community.

# Rep. Sean Casten visit

# Celebrating 10 years after the Higgs Boson discovery



# Quantum – Argonne and Fermilab collaboration

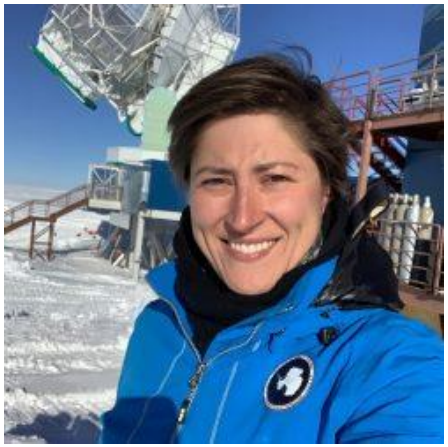
# Superconducting Quantum Materials and Systems Center

MRI technicians performing an MRI scan on a patient. Photo: NYU Langone

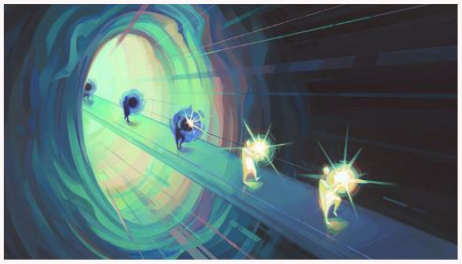
# PIP-II Update – Transportation Test Frame

# PIP-II Update – Cryogenic Plant

# The People of Fermilab



# New stories in symmetry
dimensions of particle physics

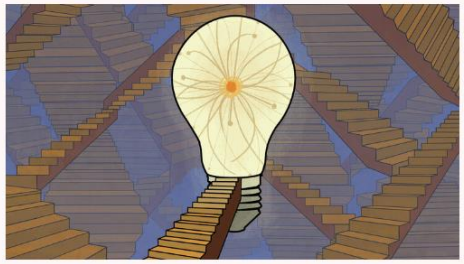


07/19/22

**LHCb ramps up the search for dark photons**
A handful of physicists have prepared the detector for a more sophisticated dark matter search.


07/12/22

**Final Snowmass meeting to be held next week**
The workshop is the culmination of a two-year process to provide a scientific vision and detailed proposals to the planning process for the future of US particle physics.

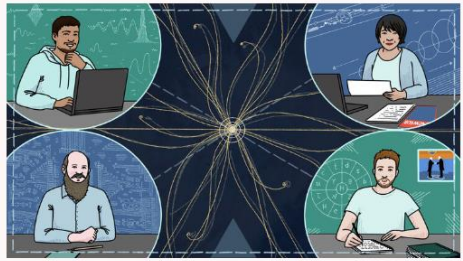


07/06/22

**10 years later, Higgs boson discoverers publish refined measurements**
In new papers by the CMS and ATLAS collaborations, physicists detail high-precision results from Higgs boson studies—but no new physics (yet).

07/05/22

**Wait, didn't the LHC already "restart?"**
Today marks the start of LHC Run 3. So what was #restartingLHC in April all about?

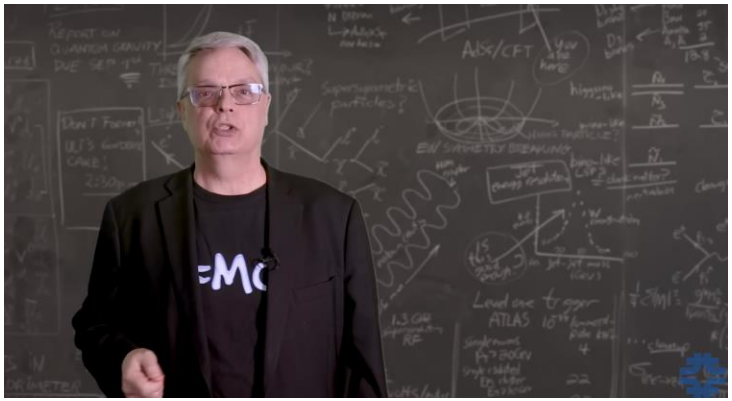



Recent issues include the following:

- Ximena Cid's physics journey.
- LHCb ramps up the search for dark photons
- The final week of Snowmass 2022
- Higgs boson 10 years later
- LHC restart

# New Fermilab videos on YouTube





# Fermilab in the news

NEWS

**Scientists hope upgraded atom-smasher can crack mysteries of the universe**

The Large Hadron Collider is scheduled to restart in just a few weeks, and scientists are ready to resume experiments that could explain mysteries of existence – including the invisible particles that make up dark matter.

SCIENTIFIC AMERICAN

**What Are Neutrinos, and How Can We Measure Their Mass?**

The weirdest subatomic particles require enormous equipment to study

By Joanna Thompson on June 15, 2022

Credit: Naeblys/Getty Images

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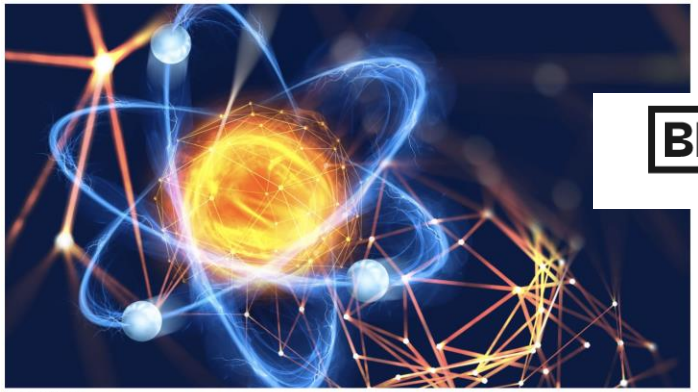
HARD SCIENCE — JUNE 30, 2022

**Neutrinos: The "ghostly chameleons" of particle physics become even more mysterious**

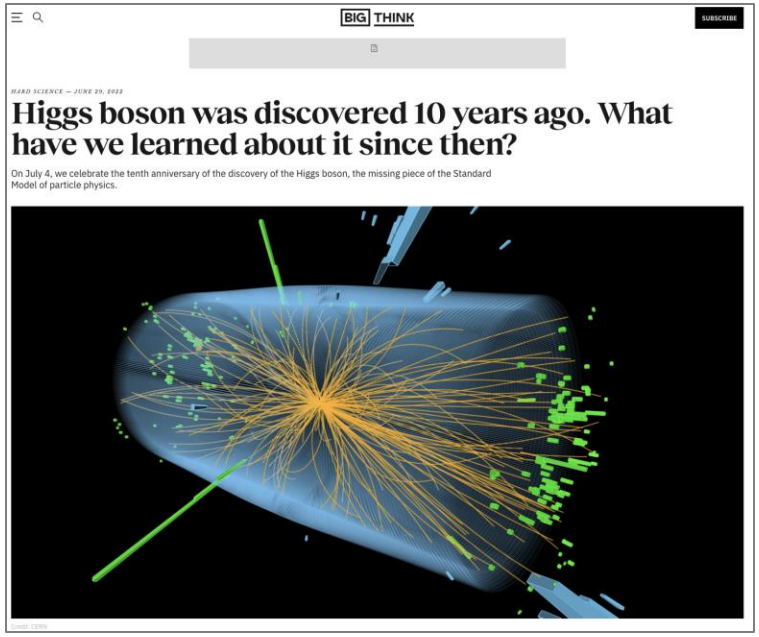
Experiments cannot confirm what theory predicts about neutrinos. And particle physicists have no idea why.

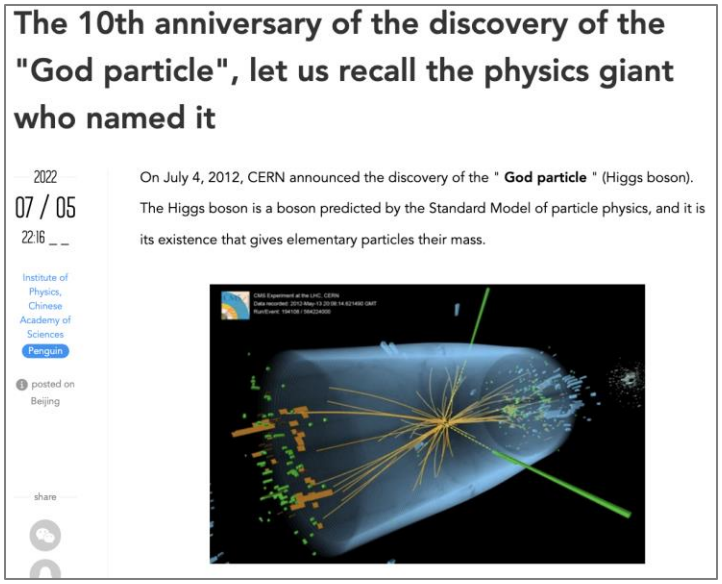


Credit: Sarmer / Adobe Stock

BIG THINK

# Fermilab in the news




# Fermilab in the news

physicsworld

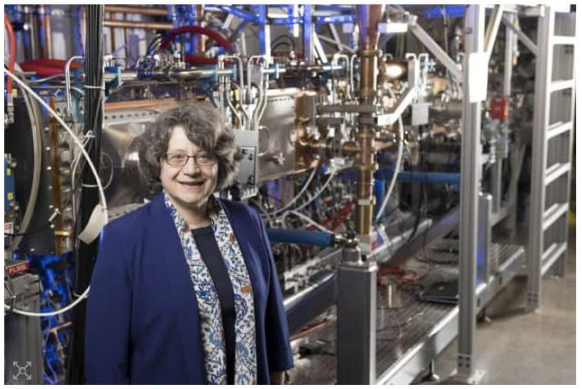
PROJECTS AND FACILITIES | FEATURE

## Lia Merminga: directing the future of Fermilab

19 Jul 2022 Laura Hiscott

Taken from the July 2022 issue of *Physics World*. Members of the Institute of Physics can enjoy the full issue via the *Physics World* app.

**Lia Merminga has just become the seventh director of the Fermi National Accelerator Laboratory in the US. She talks to Laura Hiscott about accelerator science, the future of particle physics and being the first woman to lead this iconic and influential research centre**



(Courtesy: Lynn Johnson, Fermilab)

Lia Merminga has just taken up a major mantle in the scientific world. In April, the renowned ysicist took over as director of the Fermi National Accelerator Laboratory e of the most iconic particle-physics research centres in the world. Reaching a monumental achievement, and Merminga reflects on the path that led her to ead of the institute where her journey in accelerator physics first began.

PHYSICS TODAY

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Home > July 2022 (Volume 75, Issue 7) > Page 46, doi:10.1063/PT.3.5040

## Building a ship in a bottle for neutrino science

In a former gold mine in South Dakota, an international particle-physics experiment will delve into the unexplained matter–antimatter imbalance that gave rise to the universe.

**Anne Heavey** is a senior technical editor at the Fermi National Accelerator Laboratory in Batavia, Illinois.

PDF 38 0 COMMENTS TOOLS PREV NEXT

Physics Today **75**, 7, 46 (2022); https://doi.org/10.1063/PT.3.5040

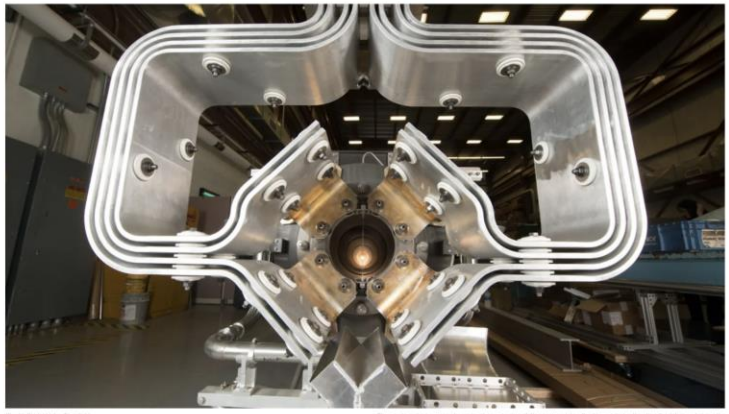
The Deep Underground Neutrino Experiment (DUNE) will be the world's largest cryogenic particle detector. Its aim is to study the most elusive of particles: neutrinos. Teams from around the world are developing and constructing dete
the Sanford Underground Research Facility, commonly
South Dakota. There the detector components will be l
underground through a narrow shaft to the caverns, wh
operated while being sheltered from the cosmic rays th
surface.

BIG THINK

STARTS WITH A BANG — JULY 8, 2022

## Ask Ethan: How can physicists make neutrino beams?

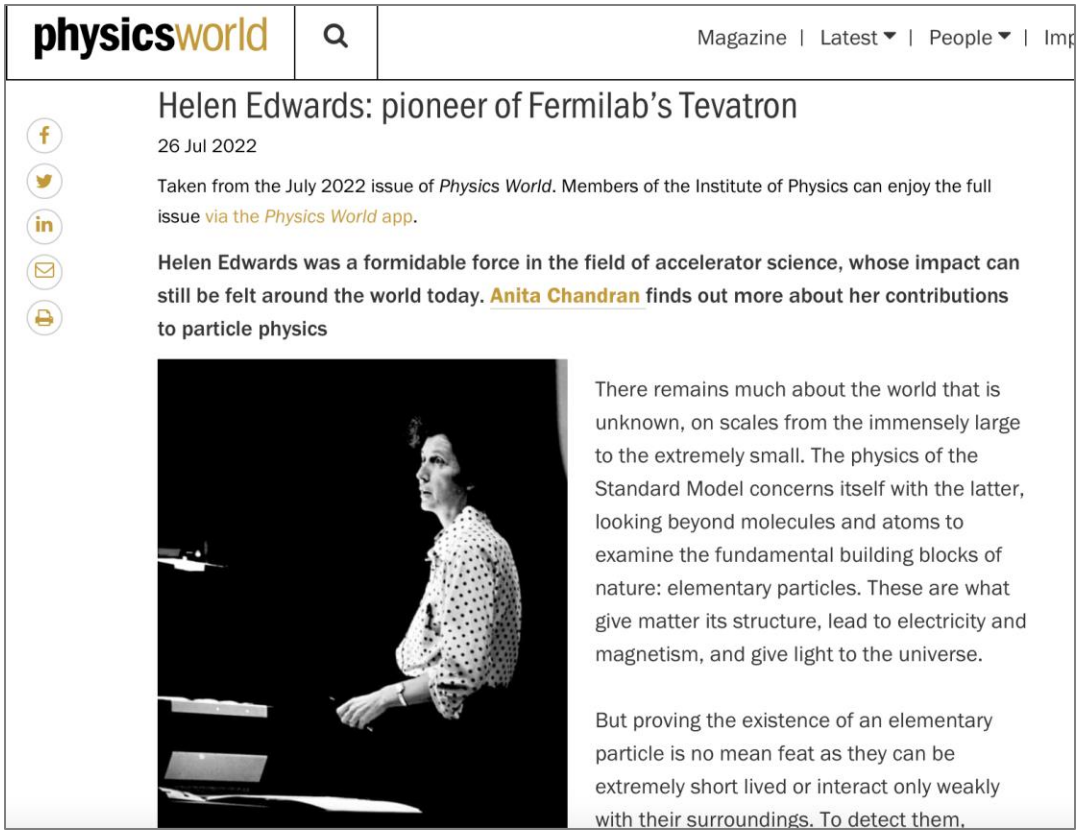
The neutrino is the most ghostly, rarely-interacting particle in all the Standard Model. How well can we truly make "beams" out of them?





Fermilab

# Fermilab in the news



physicsworld

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## Helen Edwards: pioneer of Fermilab's Tevatron

26 Jul 2022

Taken from the July 2022 issue of *Physics World*. Members of the Institute of Physics can enjoy the full issue via the *Physics World* app.

**Helen Edwards was a formidable force in the field of accelerator science, whose impact can still be felt around the world today. Anita Chandran finds out more about her contributions to particle physics**

There remains much about the world that is unknown, on scales from the immensely large to the extremely small. The physics of the Standard Model concerns itself with the latter, looking beyond molecules and atoms to examine the fundamental building blocks of nature: elementary particles. These are what give matter its structure, lead to electricity and magnetism, and give light to the universe.

But proving the existence of an elementary particle is no mean feat as they can be extremely short lived or interact only weakly with their surroundings. To detect them,

# Questions?