November 2022 CAB meeting
Notes and links

New chief engineer
October 14, Mayling Wong-Squires was announced as the next chief engineer at the nation's leading particle physics and accelerator laboratory. Wong-Squires came to Fermilab 25 years ago as a mechanical engineer with a focus on design engineering. She currently serves as the head of the lab's Accelerator Directorate's Mechanical Support Department.

New COO, Scott Tingey
On November 14, Scott Tingey began as the lab's new chief operating officer. He will be responsible for all business operations system
Scott Tingey comes to Fermilab with previous COO experience at Los Alamos National Laboratory and Pacific Northwest National Laboratory and he has more than 30 years of experience in the service of critical Department of Energy and Department of Homeland Security missions

Quantum Update
The SQMS Center launched a redesigned web site recently.
The new navigation and look make it easier to learn about the people, facilities, research and workforce development that goes in to making advancements in Quantum Information Science and the ambitious effort towards making a powerful quantum computer.

Jens Koch named new deputy director of SQMS Center
Jens Koch, professor of physics at Northwestern University, will serve as the next deputy director for the collaboration of 23 partner institutions that make up the Superconducting Quantum Materials and Systems Center.

DUNE Update

Batavia https://news.fnal.gov/2022/11/sbnd-scientists-complete-assembly-of-large-neutrino-detection-system/
Short Baseline Neutrino Detector scientists complete assembly of large neutrino detection system after 4 years. The detector is about the size of a small, two-story house. Built for the Short-Baseline Near Detector, the system will be moved across the Fermilab site from the assembly building to the detector hall in the coming weeks.

Lead, SD
Sending a full-scale DUNE detector component a mile underground
On Wednesday, Nov. 2, personnel at the Sanford Underground Research Facility successfully lowered a 25-foot-long detector component for DUNE a mile underground. This was a full-scale prototype assembled and tested in Europe, then shipped from CERN to South Dakota. DUNE will ship about 150 of these components to South Dakota to build the first neutrino detector module of the Deep Underground Neutrino Experiment. Photo: Matthew Kapust, Sanford Underground Research Facility.

Science News

15 spectacular photos from the Dark Energy Camera

The Dark Energy Camera has snapped more than one million exposures of the southern sky. The images have captured around 2.5 billion astronomical objects, including galaxies and galaxy clusters, stars, comets, asteroids, dwarf planets and supernovae.

Now 10 years since the Dark Energy Camera first saw stars, the impressive 570-megapixel camera was originally built at the U.S. Department of Energy's Fermi National Accelerator Laboratory for the Dark Energy Survey. The international DES collaboration uses the deep-space data to investigate dark energy, a phenomenon that is accelerating the expansion of space.

MicroBooNE

New MicroBooNE analysis takes a closer look at the sterile neutrino

The new analysis compares the experiment's data to a model with a fourth, sterile neutrino to test their compatibility. MicroBooNE scientists found no evidence of the long-sought sterile neutrino in the parameter range explored.

Fermilab news

Fermilab receives Inflation Reduction Act funding

The U.S. Department of Energy allocated funds to its 17 national laboratories from the Inflation Reduction Act to mitigate the rise of project costs as a result of inflation. Fermilab will spend the funding on the lab's on-going construction projects. This will allow the lab's major projects to uphold their schedules and keep their commitment to international collaborators.

Gina Rameika named the new associate director for high-energy physics at DOE

Nov. 3 – Gina Rameika has accepted the role of associate director for its Office of High Energy Physics where she will oversee all high-energy physics research activities in the United States at both national laboratories as well as universities. She joins the DOE Office of Science on Nov. 7.

15 photos celebrating Fermilab's storied bison

In 2013, the U.S. Senate passed its first National Bison Day Resolution. Observed on the first Saturday in November, National Bison Day falls on Saturday, Nov. 5, this year.

Symmetry stories

Madagascar's path to neutrino physics

Laza Rakotondravohitra was the first Malagasy grad student to conduct research in neutrino physics. He and others are working to ensure he will be far from the last.

Parenting in physics

Scientists discuss the challenges of being caregivers in physics and some ways they've seen the field change for the better.

How to maintain a physics experiment in a desert

Threats of scorching heat, walls of tumbleweed, and countless critters mean innovation is a must for the facilities manager for LIGO Hanford Observatory.

Physicists work to bring more undergrads into research
Despite challenges, some physics faculty at predominantly undergraduate institutions make research experiences available to students.

The next stage of cosmic microwave background research
With CMB-S4, scientists hope to connect a sandy desert with a polar desert—and revolutionize our understanding of the early universe.

After fire and monsoons, DESI resumes cataloguing the cosmos
Collaborators on the Dark Energy Spectroscopic Instrument breathe a sigh of relief as they successfully restart the state-of-the-art experiment.

After fire and monsoons, DESI resumes cataloguing the cosmos
The powerful camera built for the Dark Energy Survey has taken more than 1 million photos from its perch in Chile. Here are some of the best

People
Maria Vincenzi wins 2022 URA Graduate Thesis Award
Astrophysicist Maria Vincenzi won the award for her thesis, which created a process for preventing Dark Energy Survey data from being thrown out due to contamination from unusable supernovae.

Two Fermilab scientists named American Physical Society fellows
The American Physical Society announced the recipients of the 2022 APS Fellowships. Two U.S. Department of Energy's Fermi National Accelerator Laboratory scientists were selected as 2022 APS fellows, a distinction awarded each year to no more than one-half of 1% of current APS members by their peers.to no more than one-half of 1% of current APS members by their peers.

Mike Albrow, scientist emeritus, is named an APS fellow by the Forum on Outreach and Engaging the Public "for a long interest in science outreach, including creating a school visit program in 2005 that continues to this day and has impacted over 200,000 children, and writing a science column in a newspaper and website that connects with thousands of readers."

Juan Estrada is named an APS fellow by the Division of Astrophysics "for critical contributions to cosmology experiments DES and DESI, and for pioneering the use of thick Charged Coupled Devices (CCDs) with ultra-low readout noise for the search for low-mass dark matter."

Three students awarded DOE Graduate Student Research Fellowships
https://news.fnal.gov/2022/10/three-students-awarded-doe-graduate-student-research-fellowships-2/
Fermilab had three students who received the prestigious U.S. Department of Energy Office of Science Graduate Student Research Fellowships to conduct their research at Fermilab. DOE awarded these fellowships to 44 students from U.S. universities.

The recipients:
Hans Johnson, Illinois Institute of Technology
John Smedley, University of Rochester
Shreya Sutariya, University of Chicago

New videos on YouTube

Don Lincoln–How cold can it get?
Cryogenics is the science of cold. But how cold is cold? In this video, Fermilab scientist Dr. Don Lincoln tells us about some of the most amazing achievements in cryogenic science. And there is no truth to the rumor that he sings at the end.

Don Lincoln– What happens when you fall into a black hole?
Dr. Don Lincoln tells you what it's really like, telling the facts and dispelling fiction.

How fast do neutrinos travel? | Even Bananas
Dr. Kirsty Duffy and Durham University neutrino theorist Dr. Jessica Turner discuss how fast the elusive neutrinos can travel.

Fermilab In the News

Improving quantum computer performance with new control electronics
From Electronic Specifier, September 2, 2022:
Electronic Specifier's podcast talks with Gustavo Cancelo, Lead Engineer at Fermilab about a project that is developing new control electronics for quantum computers known as QICK. Developed by a team of engineers at Fermilab in collaboration with the University of Chicago, the Quantum Instrumentation Control Kit provides computing experiments with a new control and readout electronics option that will significantly improve performance while replacing cumbersome and expensive systems.

Is particle physics at a dead end?
From Prospect, August 29, 2022:
The LHC is back running now colliding more intense beams, generating more collisions and collecting more data to sift. Fermilab's Muon g-2 results offered an intriguing hint about muons that the LHC can follow up on by looking for new particles directly and the behavior it should induce in particles we know about.

How fast is gravity, exactly?
From Big Think, October 25, 2022: Don Lincoln explores the two theories of gravity from Newton and Einstein. Due to astronomers observations of gravitational waves recorded in 2017, we now know that gravity and light travel at the same speed.
The Hubble tension: Is cosmology in crisis?
From Big Think, Nov. 2, 2022: Don Lincoln explores Hubble tension, two very precise yet conflicting estimates of the rate at which the Universe is expanding. While the of Universe

expansion is consistent, the two ways in which this is measured begs the question if something is missing in cosmology theory.

Lia Merminga serves as Fermilab's first female director
From Naperville Community Television, October 26, 2022: This past April, Lia Merminga made history, becoming the first female director of the Fermi National Accelerator Laboratory, better Naperville Community Television talks with Merminga on her journey that led her to her role at Fermilab.
A view from Fermilab
From the CERN Courier, Nov. 8, 2022: Editor Matthew Chalmers spoke with Lia Merminga on her love of physics, her goals as Fermilab director and what can be done to carve a path for future female lab directors.

Charting the future of US particle physics

Lab, scientists celebrate successful test for DUNE experiment

Some labs, projects win big as Department of Energy disburses extra funds

A view from Fermilab

The Hubble tension: Is cosmology in crisis?

Wobbling into the new frontier of physics: VSP Awardee Brynn MacCoy contributes detector systems to Muon g-2 experiment to test Standard Model

Lia Merminga serves as Fermilab's first female director

How fast is gravity, exactly?

Rule-breaking particles pop up in experiments around the world

Clash of the Titans