

## Calendar

[Have a safe day!](#)

Tuesday, July 14  
9 a.m. - 6 p.m.

[International Neutrino Summer School](#)

Noon  
[Summer Lecture Series](#) - Curia II

Speaker: Sekazi Mtingwa, Massachusetts Institute of Technology

Title: From Waste to Indispensability: The Rise of Synchrotron Light Sources  
3:30 p.m.

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Wednesday, July 15  
9 a.m. - 6 p.m.

[International Neutrino Summer School](#)

3:30 p.m.  
DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
4 p.m.

[Fermilab Colloquium](#) - in conjunction with Neutrino Summer School - One West  
Speaker: Yossi Nir, Weizmann Institute of Science  
Title: Flavour Physics in the LHC Era

[Click here](#) for NALCAL, a weekly calendar with links to additional information.

## Campaigns

[Take Five](#)

[Tune IT Up](#)

## From *symmetry breaking*

### Another cosmic-ray puzzle: Are iron nuclei bombarding Earth?



A fluorescence telescope (background) and a surface detector at Pierre Auger Observatory in Malague, Argentina.

For decades, scientists have thought that the highest-energy cosmic rays—those packing up to a million trillion electronvolts—were almost exclusively protons. But data from the Pierre Auger Observatory in Argentina, the world's top facility dedicated to ultra-high-energy cosmic rays, could tell a startlingly different story. At the International Cosmic Ray Conference, held from July 7 to 15 in Lodz, Poland, Auger scientists are presenting data that raises the possibility that some of those super-speedy cosmic bullets could actually be iron nuclei.

"It would surprise a lot of people if some of these particles turned out to be iron," says Hank Glass, an Auger collaborator at Fermi National Accelerator Laboratory. While scientists can imagine mechanisms that would accelerate protons up to nearly the speed of light, they have no idea where ultra-energetic iron nuclei could originate.

"Then again," Glass adds, "nature is full of surprises."

Scientists at Auger combine two methods to investigate these mysterious extragalactic invaders. An array of 1600 water tanks, spread over 1200 square miles of Argentine grassland, acts as a giant particle detector, tracking the showers of secondary particles that high-energy cosmic rays generate when they hit air molecules in Earth's atmosphere. A set of fluorescence telescopes picks up the faint ultraviolet glow of those secondary

## Director's Corner

### Review season

There are days when it feels like the good gardener is looking after us: every morning the gardener walks into the vegetable patch to ensure that the plants are healthy, pulls them out of the ground, inspects the roots and puts them back in the dirt.



Pier Oddone

In June and July we are going through many reviews and inspections of our science program: presentations to our board of directors; a presentation to the director of the Office of Science, Bill Brinkman, on our neutrino program; the DOE review of Proton Accelerator Research; presentations to our Physics Advisory Committee on nearly everything; the DOE review of Detector R&D; the DOE Science and Technology Review of the whole laboratory; the DOE "Lehman" review of the Dark Energy Survey (following our own review to get ready for the real review), two NOVA Director's Reviews to be ready for the DOE CD3-b construction review coming up next week; the DOE review of the LHC Accelerator Research Program (LARP); and the DOE review of the Accelerator Project to Upgrade the LHC (APUL). That's a lot of reviews. Is this good or bad? How many times can the gardener check the roots before the plants begin to wilt?

Clearly for some of us the reviews create a very demanding schedule. The nature of our jobs means that we have to pay attention to all these reviews and act on their recommendations. It is also demanding of the various projects and programs, but for folks in the trenches the reviews do not pour in every week but mostly on a yearly basis. The demands on time to prepare for reviews have an impact on the progress of programs and projects: a negative one because they demand time for preparation—and a positive one because the preparation leads to a better understanding, organization and effectiveness of projects and programs.

For me an overwhelming benefit of having many reviews is that each review brings a

## Weather



Slight chance of storms  
80°/67°

[Extended Forecast](#)  
[Weather at Fermilab](#)

## Current Security Status

[Secon Level 3](#)

## Wilson Hall Cafe

Tuesday, July 14

- Chicken & rice soup
- Italian sausage w/peppers & onions
- Beef stroganoff
- Chicken lemon
- Peppered beef
- Assorted sliced pizza
- Chicken tostadas

[Wilson Hall Cafe Menu](#)

## Chez Leon

Wednesday, July 15

- Lunch
- Maple bourbon glazed salmon
  - Roasted potatoes
  - Baby carrots w/dill
  - Caramel apple shortcake

Thursday, July 16

- Dinner
- Melon & prosciutto
  - Herbes de Provence - crusted lamb chops
  - Grilled new potatoes w/mint
  - Steamed green beans
  - Blueberry-blackberry shortcakes

[Chez Leon Menu](#)

Call x3524 to make your reservation.

## Archives

particles interacting with atmospheric nitrogen. Merging data from both sources, scientists can determine the energy, trajectory, and—ideally—identity of the primary particles.

One telltale statistic is the altitude at which the cosmic rays interact. Based on data from human-made particle accelerators, theorists have developed models for the interactions of various particles in Earth's atmosphere. Protons, with their small mass, should penetrate relatively deeply before they start to shower. Heavier nuclei, like iron, should generate showers further from Earth's surface.

[Read more](#)

-- *Rachel Carr*

## In the News

## Gov. signs \$31 billion construction plan

From *Daily Herald*, July 13, 2009

Gov. Pat Quinn on Monday approved the state's first construction spending plan in over a decade - a \$31 billion infusion expected to create thousands of jobs and help rebuild the state's crumbling infrastructure that will be paid for through new and higher taxes and a vast expansion of legalized gambling.

The law won wide praise, including among bicycling enthusiasts, labor leaders and school officials. But it drew the ire of gambling opponents who say many people will lose large sums of money now that the state has made it legal to bet on the video poker machines found in many bars, restaurants and truck stops.

... Among suburban projects in the \$31 billion capital spending program signed by Illinois Gov. Patrick Quinn on Monday: \$17 million to the Fermi National Accelerator Lab (Batavia) the Illinois Accelerator Research Center

[Read more](#)

## Tune IT Up Announcement

distinguished set of scientific and technical peers to Fermilab to learn about our programs. They study our programs deeply enough to give us their perspective and advice, and they give confidence to DOE on the soundness – or need for improvement – of our various activities. An important example was the recent DOE Science and Technology Review that encompassed 75 percent of our laboratory activities. It was an extremely positive review across the board. At the same time, it gave us sound advice on issues we should address in the weeks and months to come. I received many enthusiastic comments after the review. We very much hope we turned the peers who reviewed us into our ambassadors to the community.

## In Brief

## Intro to neutrino research offers career options to physicists, engineers

Not sure what direction you want your career to go in?

Wondering why neutrinos are the talk of particle physics lately?

Curious how neutrino collaborations and detectors differ from the Tevatron and LHC experiments?

Want to learn about the chance to help build a “super beam” accelerator?

You can get all your questions answered and an overview of current and future neutrino experiments during a one-day event Monday, July 20, open to all Fermilab employees and users.

“We are really aiming at the young people who have not really decided what they want to do in the future,” said Jorge Morfin, co-organizer of the lectures. “This set of introductory lectures is for them to get a taste of what neutrino factories are.”

A trio of entry-level lectures will offer exposure to possible future neutrino projects, including a neutrino factory; current hot physics questions in neutrino research; how neutrino research aligns with Project X and DUSEL; and the challenges of building neutrino detectors and accelerators, particularly a proposed “super beam.”

No registration is needed, simply stop by Ramsey Auditorium to hear all or part of the

[Fermilab Today](#)[Result of the Week](#)[Safety Tip of the Week](#)[User University Profiles](#)[ILC NewsLine](#)**Info**[Fermilab Today](#)

is online at:

[www.fnal.gov/today/](http://www.fnal.gov/today/)

Send comments and suggestions to:

[today@fnal.gov](mailto:today@fnal.gov)Visit the Fermilab [home page](#)

## Tune IT Up taking stock of computing at Fermilab



As part of the Tune IT Up campaign, Fermilab Chief Information Officer Vicky White and Computing Division staff will collect basic data about the laptops, desktops and smart phones Fermilab employees and visitors use for their daily work.

Your part in this data collection will involve taking about five minutes to fill out an assessment form online. The form will ask for information about your location in the laboratory, what kind of machines and operating systems you use and whether your machine provides services to other users.

Each week, members of one division, section, center or experiment will receive the request to fill out their assessments, starting this week with the Technical Division. When it is your turn, the Service Desk will send you an e-mail message with information about how to fill out the form.

You can also reach the form at any time through the Tune IT Up Web site at [www.fnal.gov/tuneitup](http://www.fnal.gov/tuneitup).

The laboratory is taking this inventory to gather up-to-date information about the laptops, desktops and smart phones used to connect to the Fermilab network. Using this information will allow the laboratory to better support and protect computers and to ensure that systems are appropriately configured. The vulnerability of even one machine can cause a disruption across the entire laboratory. The assessment could bring to light security vulnerabilities that may not be obvious. For example, if your machine runs a Linux operating system, but you share Windows files, you will need to run both Linux and Windows antivirus software.

The Computing Division will also use the assessment to make sure each machine gets

lectures.

Ed Kearns, of Boston University, will speak at 10 a.m. about the basics of neutrino oscillations, established results and ideas for future experiments. Jeff Nelson, of the College of William and Mary, will speak at 11:05 a.m. about future detector challenges and opportunities. Swapam Chattopadhyay, of the Cockcroft Institute, will speak at 11:50 a.m. about the accelerator physics challenges and opportunities.

You can find out more about the talks at the [NuFact09 Web site](#).

This special event is in conjunction with the opening session of NuFact09, an annual international neutrino workshop. You do not have to attend Nu Facts '09 to attend the July 20 lectures.

-- Tona Kunz

### Announcements

[Change to Users' Office hours](#)[Time to complete accomplishment reports](#)[Bristol Renaissance Faire discount tickets](#)[On-site housing-fall 2009/spring 2010](#)[Six Flags Great America discount tickets](#)[Pool memberships available in the Recreation Department](#)[Raging Waves Waterpark online discount ticket program](#)[Toastmaster Meeting - July 23](#)[MathWorks free seminar - July 15](#)[English Country Dancing, July 19](#)[Argentine Tango classes through July 22](#)[Intermediate/Advanced Python Programming July 22-24](#)[Accelerated C++ Short Course begins August 6](#)

proper care, tailored to its type and function. “If your computer is running file shares, it should be treated as a file server, not a desktop,” said Jack Schmidt of the Computing Division. Otherwise, it’s like seeing a veterinarian to treat a cold or wearing a helmet to warm your hands.

Please submit questions about the assessment through the [Tune IT Up Web site](#).

[Outlook 2007: New Features class August 6](#)

[The University of Chicago Tuition Remission Program August 17 deadline](#)

[Process piping \(ASME B31.3\) class offered in October](#)

[Additional Activities](#)

[Submit an announcement](#)