

## Calendar

### [Have a safe day!](#)

**Wednesday, July 21**

**3:30 p.m.**

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
**4 p.m.**

[Fermilab Colloquium](#) - One West

Speaker: Anthony Tyson, University of California, Davis  
Title: LSST and the Physics of the Dark Universe

**Thursday, July 22**

**2:30 p.m.**

[Theoretical Physics Seminar](#) - Curia II

Speaker: Jan Winter, Fermilab  
Title: New Algorithms to Compute Virtual and Tree-Level Amplitudes

**3:30 p.m.**

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
**4 p.m.**

[Accelerator Physics and Technology Seminar](#) - One West

Speaker: Hamid Ait Abderrahim, Belgian Nuclear Research Centre  
Title: MYRRHA - A Multi-National Demonstration Program for Incineration of Spent Nuclear Fuel Wastes: Status of MYRRHA and ISOL@MYRRHA in March 2010

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

[Upcoming conferences](#)

## Campaigns

[Take Five](#)

[Tune IT Up](#)

## H1N1 Flu

For information about H1N1, visit Fermilab's flu information [site](#).

## Weather



**Mostly sunny**  
**86°/71°**

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

## Current Security Status

[Secur Level 3](#)

## Wilson Hall Cafe

**Wednesday, July 21**

- Breakfast: English muffin sandwich
- Beef barley soup
- Gyros
- Caribbean grilled salmon
- Stuffed pepper
- Beef and cheddar panini

## Feature

### Folk music concert and print exhibit Saturday



Folk musician and printmaker Deborah Maris Lader's piece "Nuthatch Suite" is one of the prints currently on display in the Fermilab Art Gallery.

A rare event in Fermilab's cultural series will take place this Saturday: both sounds and sights from one of Chicago's distinctive artistic talents, Deborah Maris Lader, will be on display.

As a member of the altfolk trio [Sons of the Never Wrong](#), Lader will perform with her fellow musicians on the Ramsey Auditorium stage. And as founder of the [Chicago Printmakers Collaborative](#), Lader, along with seven other CPC artists whose prints are being exhibited in the Fermilab Art Gallery, will chat with attendees at a pre-concert artist reception.

"It's a neat kind of collaboration, one that's never happened before," said Georgia Schwender, exhibit curator and member of the Fermilab Auditorium Committee.

Concertgoers attending the Sons show can expect to hear a wide range of sentiment and styles in the band's two- and three-part vocal harmonies and in its sometimes-strummy, sometimes-twangy textures.

"We can sing sweet and sad and beautiful songs, but in between, people are laughing their heads off," Lader said. "It's spicy."

A similar breadth of affects and subject matter expressed in the gallery exhibit – from a whimsical etching of wigs to a nostalgic screenprint of the Chicago cityscape – is united by the process of printmaking.

"We're excited to have Sons of the Never Wrong performing their unique, high-energy brand of alternative-folk on stage," said Performing Arts Director Janet MacKay-Galbraith. "Since the Gallery Opening is the same evening, art and music lovers can converge and attend both events."

Lader looks forward to Saturday's opportunities for exchange between audience and musician as well as between viewer and artist. She also looks forward to mingling with a slice of company she doesn't typically keep: scientists.

"What the scientists don't know is that, after the reception, we'll take away tidbits from our conversations with them that might make it into our songs," Lader said.

The artist reception takes place Saturday, July 24, from 5-7 p.m. in the 2nd floor gallery. Sons of the Never Wrong follow at 8 p.m. in Ramsey Auditorium.

## From the Technical Division

### Niobium tin magnet performance scales up

*Giorgio Ambrosio, leader of the LARP long-quadrupole R&D program, wrote this week's column.*



Giorgio Ambrosio

While the performance of the Large Hadron Collider at CERN is improving almost daily, members of the US LHC Accelerator Research Program collaboration already are developing the next generation of superconducting magnets that may allow the LHC to exceed its initial design goals.

The key to this improvement is niobium tin (Nb<sub>3</sub>Sn), a material that is superconducting at higher temperatures and magnetic fields than niobium titanium (NbTi), which is presently used in LHC superconducting magnets.

But using the better performing material comes at a price: niobium tin is a brittle material with superconducting properties that can degrade under strain. It requires different coil-fabrication technologies and magnet-assembly procedures from the traditional niobium titanium. In particular, its brittleness and strain sensitivity make the fabrication of long coils—significantly longer than 1 meter—even more challenging.

The LARP collaboration, which comprises magnet experts at Berkeley, Brookhaven, Fermilab and SLAC national laboratories, achieved an important [milestone](#) in December 2009 when the first four-meter-long quadrupole magnet with niobium-tin coils (LQS01) reached a magnetic field gradient of 200 Tesla per meter in a test here at Fermilab.

But the collaboration knew that it could achieve more. In earlier tests with one-meter-long magnets, the best magnets had achieved 222 T/m. So, the collaboration set out to show that it is possible to scale up the length of these superconducting magnets without a loss in performance. To make our point, we took apart the LQS01 magnet and reassembled its four coils, applying a higher and more uniform pre-load on the structure. When we tested the magnet earlier this month at a temperature of 4.5 K, we reached our goal of 222 T/m.

This exceptional result by the LARP collaboration is the fruit of an extraordinary effort to which Fermilab's Technical Division makes many contributions, including coil design and fabrication; coil-splice assembly; conductor tests; magnet test preparation and magnet tests; and project leadership.

Future LARP plans include demonstrating the reproducibility of the four-meter test results with new coils made with the same superconducting material; improving [magnet performance](#) by using a conductor with thinner filaments; and developing a coil insulation suited for the production of even longer coils.

## Safety Update

- Assorted sliced pizza
- Grilled chicken bowtie w/ tomato cream

[Wilson Hall Cafe Menu](#)

### Chez Leon

#### Wednesday, July 21

##### Lunch

- Chile rellenos
- Spanish rice
- Refried beans
- Pineapple flan

#### Thursday, July 22

##### Dinner

- Corn cakes w/ shrimp and chipotle
- Fillet of beef w/ morel sauce
- Potato gratin
- Chive green beans
- Mocha soufflé

[Chez Leon Menu](#)

Call x3524 to make your reservation.

### Archives

[Fermilab Today](#)

[Result of the Week](#)

[Safety Tip of the Week](#)

[CMS Result of the Month](#)

[User University Profiles](#)

[ILC NewsLine](#)

### Info

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-- Leah Hesla



Sons of the Never Wrong will play at Fermilab on Saturday.

### In the News

## How long can the Higgs boson keep hiding?

From the *Telegraph*, July 13, 2010

*For 50 years, physicists have been hunting for the missing piece in the puzzle of the universe. At last, says Graham Farmelo, a sighting may not be too far away.*

When will it show its face? Since the existence of the Higgs particle was first predicted almost half a century ago, thousands of physicists have spent many millions of pounds in an attempt to pin it down, as yet to no avail. Last week, the web was humming with rumours that experimenters at Fermilab, near Chicago, had observed the particle using their Tevatron atom-smasher. But the lab's authorities moved quickly to quash the gossip, using its Twitter feed to dismiss the "rumours spread by one fame-seeking blogger". If nature really has chosen to involve the Higgs in its grand scheme, it is doing an excellent job of keeping it secret.

At first glance, it seems odd that an obscure subatomic particle has attracted so much attention. It's not just that it would be much too small for any human being to see – theorists predict that it will weigh billions of times less than a typical dust particle, and will have only the briefest of lives. After each one is born, death should follow about a hundred trillionths of a trillionth of a second later as it falls apart to produce other particles.

[Read more](#)

## ES&H weekly report, July 20

This week's safety report, compiled by the Fermilab ES&H section, includes a minor vehicle accident and a first-aid-only injury. Find the full report [here](#).

[Safety report archive](#)

### Announcements

#### Latest Announcements

##### Benefit News

[2010 Summer intern group photo - July 27](#)

[Safari Online access to O'Reilly content is available for purchase](#)

[Applications for URA Visiting Scholars Awards due Aug. 20](#)

[Summer prairie walk - noon, July 21](#)

[Take 5 Challenge Quiz](#)

[Last week's walking program drawing winner](#)

[Argentine Tango July 7-28](#)

[Lunch and Learn about Health Attachments in Relationships - July 21](#)

[Ask HR: Professional Development at CDF - July 21](#)

[Club & League Fair - Aug. 11](#)

[Artist reception - Saturday, July 24 from 5-7 p.m.](#)

[Sons of the Never Wrong - July 24, 8 p.m.](#)

[Grounding and Shielding of Electronic Systems course - Aug. 12 and 13](#)

[Free piano concert featuring Sandor Feher, Ramsey Auditorium at noon - Aug. 12](#)

[Claudia Schmidt - Singer/Songwriter - Fermilab Arts Series - Aug. 14](#)

[Gizmo Guys - Fermilab Arts Series - Sept. 25](#)

[Pre-K & Youth swim lesson session 4 deadline](#)

[Submit an announcement](#)