

## Calendar

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

**Tuesday, Aug. 31**

**3:30 p.m.**

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

**Wednesday, Sept. 1**

**3:30 p.m.**

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
THERE WILL BE NO  
FERMILAB COLLOQUIUM  
THIS WEEK

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

 **Partly sunny**  
**89°/71°**

### [Extended Forecast](#)

### [Weather at Fermilab](#)

## Current Security Status

### [Secon Level 3](#)

## Wilson Hall Cafe

## Feature

### U.S. industry developing SRF cavity expertise



AES recently completed these six Tesla-style cavities.

A new batch of superconducting radio-frequency cavities started to arrive at Fermilab this month, and expectations for their performance are high.

This group of 1.3 gigahertz, or “Tesla style,” cavities marks the third production of its kind for Advanced Energy Systems, a U.S. accelerator technology company based in Medford, New York. Over the past four years, AES has delivered 10 Tesla-style cavities in two separate batches to Fermilab. This latest batch will bring the total to 16.

AES estimates that Fermilab will have all six new cavities by the end of September.

As each cavity arrives on site, Fermilab conducts a series of measurements to determine if it meets the required specifications. The cavity then undergoes chemical processing at Argonne National Laboratory or Jefferson Lab, followed by a number of tests. If it performs well, it gets integrated into a cooled vessel called a cryomodule to become part of Fermilab’s new SRF test accelerator, currently under construction at the New Muon Laboratory.

The accelerating gradient, or how much the cavity increases a particle’s energy, is the ultimate deciding factor. To make it into Fermilab’s test accelerator, each cavity must have an accelerating gradient of at least 35 megavolts per meter. In the last two years, multiple cavities from AES have met this goal.

John Rathke, chief engineer at AES, attributes the higher accelerating gradients to improvements made during both the manufacturing and chemical treatment process.

## Director's Corner

### Director's Corner to appear Wednesday

The Director's Corner, which normally appears on Tuesday each week, will be included in Wednesday's issue of *Fermilab Today*.

## Special Announcement

### Pine Street closures scheduled this week

Inbound Pine Street will close to all traffic tomorrow, Sept. 1, starting at 10 a.m., due to culvert repairs. The street will remain closed until completion of the repairs, which is scheduled to occur the afternoon of Thursday, Sept. 2, weather permitting.

Incoming traffic from Kirk Road will need to follow detour signs to the Wilson Street entrance. During the day, drivers will be able to access the Lederman Science Education Center by using outbound Pine Street, which will remain open. Both inbound and outbound Pine Street will be closed to all traffic overnight between Sept. 1 and 2.

Outbound Pine Street will close to all traffic for similar culvert repairs at 7 a.m. on Friday, Sept. 3. Vehicles will be able to access the Lederman Center using either inbound or outbound Pine Street, as outbound Pine Street will be closed only to the west of the crossover. Pine Street will reopen late on Friday, weather permitting, upon completion of the project.

The bicycle path along inbound Pine Street will remain open to bicycles and pedestrians at all times.

## Accelerator Update

**Tuesday, Aug. 31**

Not available

[Wilson Hall Cafe Menu](#)

**Chez Leon**

**Wednesday, Sept. 1**

**Lunch**

- Fire steak salad
- Banana chocolate cake

**Thursday, Sept. 2**

**Dinner**

Closed

[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**

[Fermilab Today](#)

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*Today*

The company's purchase of their own electron-beam welding machine allowed AES to improve the mechanical quality and uniformity of the cavities. But Rathke attributes the major jump in performance to improvements made during the treatments done at Fermilab, Argonne and Jefferson Lab.

"It's an example of AES and the national laboratories getting better all together," Rathke said.

AES is now starting to manufacture 20 more cavities for Fermilab, a purchase funded by the American Recovery and Reinvestment Act.

-- *Elizabeth Clements*

**Photo of the Day**

## New employees - Aug. 30



Hang Yin and Hema Ramamoorthi

**In the News**

## Very tiny, very cool

from *Science News*, Aug. 27, 2010

Annoyingly tiny fridges may not be restricted to hotels or dorm rooms much longer. A new study proposes a way to construct the smallest refrigerator yet, based on just a few particles and capable of cooling to near absolute zero.

The study, which will appear in an upcoming issue of *Physical Review Letters*, pushes the limits of how small a cooling device can get and still remain functional.

"When thermodynamics was first invented, it was applied to big, steam engine sorts of things," says physicist Tony Short of the University of Cambridge in England, who was not involved in the study. "The fact that you can bring the ideas all the way down to individual quantum systems of tiny dimensions and the same basic ideas still work is quite nice."

[Read more](#)

**Aug. 27-30**

- Four stores provided ~40.5 hours of luminosity
  - Transfer of antiprotons from the Recycler to the TeV lost
  - The TeV quenched twice during shot setups
  - MI-30 interlocks dropped due to a PLC failure
- \*The integrated luminosity for the period from 8/23/10 to 8/30/10 was 41.23 inverse picobarns. NuMI reported receiving 5.8E18 protons on target during this same period.

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

**Announcements**

## Latest Announcements

[Pine Street closures scheduled this week](#)

[Junior Prairie Rangers - Saturday, Sept. 18](#)

[Fermilab Blood Drive today \(Walk in only\)](#)

[Fermilab Procard System – New link starting today](#)

[Workshop on Accelerator-Driven Sub-Critical Systems & Thorium Utilization](#)

[Toastmasters - Sept. 2](#)

[Bod Squad Muscle Toning begins Sept. 2](#)

[Card stamping club and scrapbooking club survey](#)

[Sign up for fall Science Adventures](#)

[Looking for league bowlers](#)

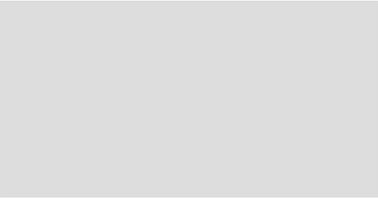
[Bristol Renaissance Faire discount](#)

[Regal Movie Theater discount tickets available](#)

[Scottish country dancing in Ramsey Auditorium through Aug. 31](#)

[International Folk Dancing in Ramsey Auditorium through Sept. 2](#)

[Fermilab Lecture Series Presents A Croc Odyssey: Speedy Gallopers with a Taste for Dinosaur](#)



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

[Family Science Time - Saturday, Sept. 25](#)

[Submit an announcement](#)