Calendar

Wednesday, May 20
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Fermilab Colloquium - One West
Speaker: Ken Marken, Los Alamos National Laboratory
Title: From Ions to Wires to the Grid: The Transformational Science of LANL Research in High-Tc Superconducting Tapes and Electric Power Applications

Thursday, May 21
11 a.m.
Computing Techniques Seminar - FCC1
Speaker: Pete Becker
Title: Writing Fast, Robust Multi-Threaded Applications with C++0x
THERE WILL BE NO THEORETICAL PHYSICS SEMINAR TODAY
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Accelerator Physics and Technology Seminar - One West
Speaker: Max Zolotarev, Lawrence Berkeley National Laboratory
Title: Radiation and Acceleration Tutorial

Click here for NALCAL, **a weekly calendar with links to additional information.**

Weather

Feature

Fermilab prairie restoration earns top marks from students

A policy of controlled prairie burning every other year keeps native plants thriving and minimizes the invasive species population.

A study of restored prairies found Fermilab's Main Ring prairie one of the area's best.

"The way that Fermilab managed its prairie restoration and kept its data analyzed put it at the top of our list," said Judy Hooysman, a junior at the Illinois Math and Science Academy in Aurora.

Hooysman and fellow student Elizabeth Richardson looked at data collected during 20 years to determine if the quality of a prairie increased over time with continuous restoration.

They studied prairies at Almon Underwood Prairie Nature Preserve in Kaneville, LeRoy Oakes in St. Charles and in Fermilab's Main Ring.

"Anytime you get a Fermilab prairie compared with regional prairies it gives you a basis for how you're doing," said Bob Lootens of Fermilab Roads and Grounds.

According to Hooysman and Richardson, Fermilab is doing great. The students completed data analysis in February and

From the Computing Divison

Where is all the data?

Steve Wolbers, associate division head for scientific computing facilities, wrote this week's column.

Generating, recording and analyzing large amounts of data makes Fermilab's scientific program thrive. Our collider and astrophysics experiments have created the largest data sets here at Fermilab. Large data-handling systems, maintained by the Computing Division, store and provide access to this data.

Steve Wolbers

Managing this data requires a lot of care. Scientists must be able to read from and write into the storage systems at any time. They must be able to access the data quickly and efficiently. The data must be kept safe, secure and remain available for many years.

Most important, our data handling must keep up with technological advances. Tape technology constantly evolves, and Fermilab has moved from 9-track, open-reel tapes to 8-mm tapes and DLT cartridges to the present generation of tape cartridges. The old open-reel 6250 tape held 180 megabytes of data; we are now at 800 gigabytes per cartridge. We store the cartridges in large robotic libraries, where they are mounted in tape drives by robotic arms under computer control. We usually copy our data to new media when the content of four old tape cartridges fits onto one new cartridge.

Earlier this month, we switched off a large robotic system that we purchased at the beginning of Tevatron Run 2, fewer than 10 years ago. The CD storage groups did an excellent job of moving the data to new, much-higher-density tape in new and faster robotic systems. This was a big accomplishment. It required a fair amount of care to ensure that thousands of tapes with a huge number of files were properly read and copied to the new tapes, then checked for readability. Of course, all of this had to happen with minimal interruption to the data users.

found the quality of the plants increased in all of Fermilab's 20 prairie plots over time. The duration and effort of restoration led to increased biodiversity and an increase in the number of native plants.

Fire was also an integral part of restoration for Fermilab's 1,100-acre native prairie. Fermilab burned the prairie every other year, which was more frequent than at the other prairies. The burns destroy non-native plant species and increases soil fertility.

The study looked at the popular processes for restoring a prairie and found they were working well. That gives Fermilab and other prairie stewards in the county a guide. Fermilab donates seeds of its native prairie plants to schools as a form of outreach and education. The students presented their analysis at the laboratory's Ecological Land Management Committee meeting in April.

"I have to give them credit for going through the hundreds of documents," Lootens said. "What they came up with was interesting.

--*Tia Jones*

Mike Bardill of Wheaton-Warrenville High School harvesting prairie seed in 2005.

Announcement

Head to the Main Ring today for exercise

Fermilab will celebrate National Employee Health & Fitness Day today from 11:30 a.m. - 1:30 p.m at the Main Ring. Walk, run or bike your way to fitness. Start at Ring Road A1. Stop at mile marker tables for water, snacks and fun activities. The event is sponsored by the Recreation Department and the Wellness Committee.

In the News

We also face tough questions related to data storage stewardship. How long should data be kept? What kind of data should be kept? How will the data be used in the future to produce scientific results?

Many laboratories and experiments face these and related questions. In January, Qizhong Li, DZero; Rob Roser, CDF; Amber Boehnlein, DOE detailee from Fermilab; and I participated in the first workshop on [Data Preservation and Long Term Analysis in High Energy Physics](#) which was held at DESY. Later this month, SLAC will host the second workshop in this series. These discussions will help us plan the long-term use of our Run 2 data and the management of data for other experiments and projects at Fermilab.

Safety Update

ES&H weekly report, May 19

This week's safety report, compiled by the Fermilab ES&H section, lists no reported injuries . It has been 27 days since the last recordable injury. Find the full report [here](#).

[Safety report archive](#)

Announcements

Latest Announcements

[**Winners of the Asian/Pacific Quiz Contest: Week 2**](#)

[**Intermediate/Advanced Python Programming July 22-24**](#)

[**Concerned about H1N1? Ask a question**](#)

[**Come to the Main Ring for Employee Health & Fitness Day today**](#)

[**"Angels & Demons" Lecture Night: The Science Revealed - May 21**](#)

[**Deadline for The University of Chicago Tuition Remission Program - May 22**](#)

[**Python training June 17-19**](#)

[**Accelerated C++ Short Course: registration open - June 8**](#)

[**Jobs at Fermilab: Employee profiles updated**](#)

Scientists debunk "Angels and Demons" antimatter

**From *Reuters*,
May 20, 2009**

Editor's note: Fermilab theorist Marcela Carena will give a lecture l about how antimatter is used in "Angels & Demons" and in real-life research at 8 p.m. Thursday in Ramsey Auditorium.

"Angels and Demons," the recently released film version of the Dan Brown thriller, focuses on a plot to destroy the Vatican using a small amount antimatter pilfered from the European particle physics laboratory CERN, the world's largest particle accelerator.

Some of the world's top particle physicists attempted to sort through facts and fiction about antimatter on Tuesday, and comment on their real quest behind CERN -- to unlock secrets about the origins of the universe.

"Antimatter atoms exist, but it is very difficult to make them," Rolf-Dieter Heuer, director-general of CERN, or the European Organization for Nuclear Research, said on Tuesday in a telephone briefing.

Antimatter particles are subatomic particles that are mirror images of matter, added Boris Kayser of the Fermi National Accelerator Laboratory in Batavia, Illinois, and chairman of the American Physical Society's Division on Particle Physics.

When the two come together, they annihilate one another, and their mass is released in the form of energy.

In Dan Brown's book, on which the Sony Pictures film was based, a quarter gram of antimatter was thought to be the equivalent of 5,000 tonnes of dynamite, enough to wipe out everything within a half mile or so.

"That number was correct," Kayser said.

But it is not likely to be used in any bomb, they said. "It would take us billions of years to produce the amount which is used in the film," Heuer said.

Read more