Fermilab Today

Tuesday, Sept. 16, 2008

Calendar

Tuesday, Sept. 16
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Wednesday, Sept. 17
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.

Weather

Sunny
71°/50°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Tuesday, Sept. 16
- Golden broccoli & cheese
- Southern-style fish sandwich
- Coconut crusted tilapia
- Smart cuisine: spaghetti w/ turkey meat sauce
- La grande sandwich
- Assorted slice pizza
- Chicken fajitas

**Denotes carb-restricted alternative*

Wilson Hall Cafe Menu

Chez Leon

Feature

Forward pixel detector ready for proton-proton collisions

FPIX team members carefully install the delicate sub-detector in CMS. (Image courtesy of Maxwell Chertok and David Pellett)

On Wednesday, Sept. 10, members of the CMS collaboration held their breath as the very first beam of protons circulated around the LHC at CERN. Leading up to the big day, scientists worked around the clock to install one of the last—and one of the most delicate—components of the CMS experiment—the forward pixel detector.

The U.S. led the effort to build the FPIX, a roughly $10 million sub-detector that allows physicists to precisely reconstruct particle trajectories from collisions. The team had a detailed installation plan and didn't take any risks. One security measure—hire a round-the-clock security guard and his trusty German shepherd named Wolf.

"Due to scheduling, we knew that the FPIX wouldn't be installed right away when it arrived at the detector hall," said Maxwell Chertok, a physicist at UC Davis who coordinated the installation effort. "It was safe on the truck, but we were worried someone might steal the vehicle. We really didn't want our FPIX going on a joy ride through the French countryside." Thanks to the security team and Wolf, the FPIX was safe.

The FPIX consists of four half cylinders, two for each end of the detector. Each half cylinder contains two interweaving half disks of pixel sensors that surround the beam pipe. Installing these fragile disks would raise anyone's blood pressure. "If the pieces touch, they break," Chertok said. "If you touch the

Director's Corner

JDEM

Pier Oddone

I remember a decade ago when the concept of a space-based dark energy mission was first proposed at Berkeley. The proponents had discovered the accelerating universe and were proposing a wide-angle telescope in space to make the next great stride in understanding the nature of the dark energy that fuels that acceleration. A camera built with charge-coupled devices, or CCDs, developed at LBNL with very broad spectral sensitivity made the telescope especially powerful. We were at a retreat of the LBNL division directors analyzing the strategic investments the laboratory should make for its future. The normally competitive process among the various disciplines for scarce resources fell apart and instead turned into unanimous support for the project, everyone motivated by the excitement of the science and the mystery of dark energy. With the initial support of laboratory discretionary funds and then the support of DOE and NASA, LBNL and its partner institutions, including Fermilab, developed a full mission concept, SNAP. In the meantime, two other competing collaborations proposed similar space-based missions in the US, and additional concepts developed in Europe.

Forward ten years from that beginning to last Friday. A "Dear Colleague" letter from the APS points us to a website that would reveal the details, where the devil hides, on how the now Joint DOE-NASA Dark Energy Mission would be carried out. The overwhelmingly positive development is that there is a detailed agreement on the principles for a comprehensive joint space mission to be launched by mid-decade, a fast time scale in this day and age.

The DOE-NASA agreement on JDEM poses important challenges for us and our collaborators. The standard approach with different teams competing for full mission concepts, something we are quite used to and comfortable with, is thrown out the window.

Wednesday, Sept. 17
Lunch
- Pork satay w/peanut sauce
- Jasmine rice
- Coconut cake w/ rum caramel sauce

Thursday, Sept. 18
Dinner
- Spinach & feta in phyllo
- Roasted prime rib
- Herb & garlic potatoes
- Dilled baby carrots & green beans
- White chocolate mousse

Chez Leon Menu
Call x4598 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and suggestions to:
today@fnal.gov

beam pipe, it breaks."

John Conway, a physicist at UC Davis, led the U.S. team that designed and built the FPIX installation equipment at Davis and then assembled it at CERN. "We tried to design an optimal system that was light and nimble," he said.

After several dry runs, the team successfully carried out their plan for a "synchronized push" and safely installed the delicate disks into the detector.

Conway missed the installation due to the birth of his son, Ian. "You know that you built a great team when the leader isn't needed," he said.

He plans to visit CERN soon and looks forward to the FPIX recording its first collisions.

--Elizabeth Clements

Letter to the Editor

To the Editor: The LHC and the SSC

We should all celebrate the first beam in the LHC. This event indeed marks a new era of scientific discovery. At the same time many of us may look back wistfully at what might have been.

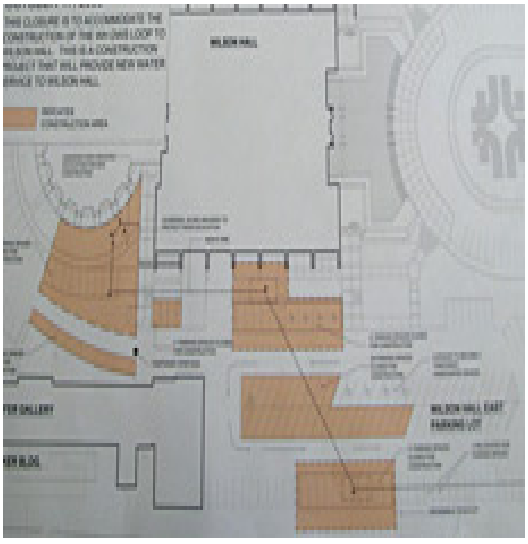
Read more

--Paul Mantsch

Paul Mantsch is project manager for the Pierre Auger Observatory.

Special Announcement

East side parking limited



Instead members from across the entire community will be invited to develop a reference mission. Scientific teams will then be selected in a competitive process to carry out the various scientific investigations. These teams do not build the hardware; rather they use the data. NASA and the DOE will build the space instrumentation and flight hardware, each agency assuming responsibility for some. They will use their own procedures in delivering the goods under the overall leadership of a project office established at Goddard. This approach requires new thinking and flexibility on our part, but it also offers great opportunities to contribute to a truly national project that is inclusive of the broadest community. We at Fermilab plan to collaborate in the scientific teams and contribute to development of the instrumentation and data handling systems that DOE assumes responsibility for. The strong bonds we have developed with our SNAP collaborators will continue in this reconfigured mission and expand to new collaborators who share our ambitions in this great enterprise.

Accelerator Update

September 12-15
- Three stores provided ~49 hours and 55 minutes of luminosity
- Pbar's lithium lens replaced
- Rain, rain, rain: heroic efforts from many people kept lab operating
- Linac water skid #3 conductivity probe fails

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Have a safe day!

Dark matter, dark energy talk in D.C
The Smithsonian in Washington D.C. will feature three prominent physicists in a discussion about dark matter and dark energy on Sept. 24. Fermilab theorist Joe Lykken and University of Chicago astrophysicists Rocky Kolb and Michael Turner will discuss upcoming research, including the use of accelerators, particle detectors and telescopes to unravel the mystery of what constitutes the 96 percent of universe that does not consist of known matter. Click here to learn more

Sign up today to help teens with the Adopt-a-Physicist program
The Adopt-a-Physicist program allows

Starting Wednesday, several parking stalls in the Wilson Hall eastside parking will be off limits while crews replace old water pipelines. The work will continue through Oct. 17. See map for construction locations.

In the News

Opinion: U.S. must enhance investment in research and education

From *The Mercury News*, Sept. 13, 2008

Given our nation's current economic uncertainty, some policy-makers are calling for across-the-board federal spending cuts to improve our nation's economy. To achieve real economic improvement and maintain our competitive global standing, we would be better served by adopting a far different approach. What our nation truly needs is a recommitment to enhancing our investment in research and education. Without this recommitment, the United States stands to lose the innovative leadership upon which the most powerful and successful economy on earth has been built.

Read more

physicists to show high school students where a degree in physics can take them. The program, coordinated by the physics honor society Sigma Pi Sigma, will allow high school students interested in physics to interact with physicists via online message boards for a three-week period. For more information, visit http://www.adoptaphysicist.org or contact Kendra Rand, Society of Physics Students program coordinator, at krand@aip.org or (312) 209-3047. The fall 2008 session will take place from Sept. 29 to Oct. 17.

Dancing party held today

The Silk and Thistle group is holding a free party in honor of "Dance Scottish Week," declared by the Royal Scottish Country Dance Society in Edinburgh to be celebrated from Sept. 12 - 20 worldwide. The party takes place today from 7:30 to 10 p.m. at Kuhn Village Barn on the Fermilab site. Newcomers are invited to join us for ceilidh and country dancing, Scottish treats with tea (bring a contribution if you'd like), trying on kilts and other fun. For more information, call (630) 584-0825 or (630)840-8194 or e-mail folkdance@fnal.gov.

Additional Activities