

Calendar

Mon., Aug. 6

PARTICLE ASTROPHYSICS SEMINARS WILL RESUME IN THE FALL

3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m.

All Experimenters' Meeting - Curia II

Tue., Aug. 7

12:00 p.m.

Summer Lecture Series - One West

Speaker: D. Ritchie, Fermilab
Title: Computing in Particle Physics

3:30 p.m.

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

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

Weather



Chance of

Thunderstorms 90°/71°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Feature

LHC's TOTEM to shine light on forward scattering particles



CERN employees Marco Oriunno, project engineer of TOTEM (right) and Jean-Michel Lacroix from Mechanical and Materials Engineering (left), stand behind one of the roman pot detectors.

TOTEM may be a small experiment with 72 collaborators, but it has the potential to make some unique observations at the LHC.

"TOTEM's ability to detect particles with very small scattering angles will allow studies of physical processes that would otherwise be impossible at the LHC," said U.S. TOTEM collaborator Jim Whitmore of Pennsylvania State University.

TOTEM experimenters will study inelastic collisions in which one proton survives and the other disintegrates and produces "debris" that continues traveling forward. They will also measure elastic collisions in which both protons survive and only slightly deflect each other. To examine these types of collisions, TOTEM scientists rely on particle detectors that are located near the CMS collision point. The detectors are close to the beam, both inside the CMS detector and far outside of it - more than 100 meters away from the collision point. TOTEM will reveal more about the effect of very high energies on protons. "Using TOTEM, we will be able to determine how the shape and size of a proton varies with energy," Whitmore said.

By counting glancing collisions, TOTEM will determine the total number of proton-proton collision probability at the LHC. This number, called the total cross section, is central in determining the probability of producing certain particles - such as the much-sought-

Safety Tip of the Week

Computer Vision Syndrome



Computer Vision Syndrome is defined as the combination of eye and vision problems associated with close-range computer screen work.

When you look into the distance your eyes are relatively relaxed. When you focus on something nearby, your eye muscles get a work out. Although this isn't necessarily a problem, an extended period of close-range focusing can cause eye strain, neck pain, blurry vision, headaches and difficulty changing focus, all elements that may occur with Computer Vision Syndrome. This may also cause dry eyes, since eyes are open wider during computer work and blinking is reduced.

Studies have shown that eye problems occur in 75 to 90 percent of computer users. Here are some suggestions on ways to avoid Computer Vision Syndrome:

Everything in its place. Adjust the center of the computer screen so that it is 4-8 inches below eye level and the viewing distance to 20-28 inches. If you use a document holder, place it close to the screen so you don't have to swing your head back and forth or change focus.

Moisture eyes. Blink more frequently whenever you begin to feel your eyes are dry or irritated. If you are sitting in a draft, move to keep the air flow out of your eyes. Avoid low humidity and contaminated air. Use eye drops ("artificial tears"). Stay hydrated.

Can you see me now? Adjust the lighting and screen position to minimize glare and reflections. If you wear glasses, ask your optical specialist whether your prescription can

Monday, August 6

- Potato au gratin
- Monte cristo
- *Savory roasted chicken quarters
- Lasagna bolognaise
- Chicken ranch wrapper
- Assorted slice pizza
- Szechuan style pork lo mein

[Wilson Hall Cafe Menu](#)

Chez Leon**Wednesday, August 8 Lunch**

- Salmon w/Shallot Sauce
- Pine Nut & Lemon Orzo
- Chocolate Cake w/ Strawberries & Ice Cream

Thursday, August 9 Dinner

Closed

[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

after Higgs boson - in LHC collisions. Data provided by TOTEM will also allow scientists to calculate the LHC's luminosity, or its rate of producing collisions.

Together, the TOTEM and CMS detectors cover the whole range of scattering angles, which has never been done in a hadron collider before. TOTEM has two detectors inside CMS called T1 and T2 that will detect the "debris" particles produced in inelastic collisions. TOTEM will investigate the slightly deflected protons using a total of eight special particle detectors called Roman pots that will be placed in pairs at distances of 150 meters and 220 meters from the collision point. TOTEM's Roman pots will collect data from a distance of 800 microns from the beam, which will provide a high level of precision for total cross section measurements.

-- *Amelia Williamson*

Photo of the Day**Summer internships, lectures come to an end**

Fermilab's 2007 summer students gather for an end-of-summer photo before heading home or back to college. This week marks the final Summer Internships in Science and Technology [lecture](#) for 2007. Computing Division's Dave Ritchie will give a presentation titled "Computing in Particle Physics" on Tuesday.

In the News

be adjusted to accommodate computer work.

Break it up. Follow the 20-20-20 rule. Every 20 minutes, look away beyond 20 feet and blink for 20 seconds.

[Safety Tip of the Week Archive](#)

In the News**Chicago Tribune, August 5, 2007****Supercollisions on the horizon?**

The project staggers the imagination: a machine that would stretch 20 miles through the bedrock 400 feet beneath Kane, DuPage and perhaps Will Counties. It could help physicists discover mysterious forces of the universe and new dimensions in the fabric of space and time.

But there are other mysteries to resolve before the first spade is turned for a proposed, multibillion-dollar International Linear Collider scientists hope to center under Fermi National Accelerator Laboratory's Batavia campus.

What would the neighbors think about subatomic particles being fired at nearly the speed of light under west suburban homes, back-yard pools and cornfields? And how to accommodate any criticisms in advance and bring folks onboard?

[Read more](#)

Accelerator Update**August 1 - 3**

- Two stores provided 44 hours and 49 minutes of luminosity
- CDF fixes SVX high voltage problem
- MI has power supply trouble (HT828)
- MiniBooNE horn trips

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

DOE press release, August 3, 2007

U.S. Department of Energy Extends Stanford's Contract

The U.S. Department of Energy (DOE) today announced that it will extend, for up to two years, the management and operating (M&O) contract for its Stanford Linear Accelerator Center (SLAC) in Menlo Park, California. The Board of Trustees for the Leland Stanford Junior University currently holds SLAC's M&O contract, set to expire September 30, 2007. The annual estimated value for this performance-based contract is \$316 million.

"The researchers at the Stanford Linear Accelerator Center continue to make leading contributions to science," Under Secretary for Science Raymond L. Orbach said. "Through this contracting process, DOE is seeking the best possible management of this laboratory to sustain our nation's cutting-edge resources."

[Read more](#)

University of Chicago Tuition Remission Program for Children of Fermilab Employees

The Fermilab Research Alliance (FRA) announces the tuition remission program at the University of Chicago. Dependent children of regular, full-time employees of the lab are eligible for this benefit. If your child is accepted and enrolls as an undergraduate student at the University of Chicago, this benefit allows you to pay only half of the undergraduate tuition for your child. You must be the legal guardian and claim the child as a dependent for federal income tax purposes. The maximum benefit is twelve quarters. More information is available by calling Nicole Gee at x3697 or [online](#).

CERN Safety Commission presentation Wednesday

Fermilab will be hosting Maurizio Bona, head of the CERN Safety Commission, on Wednesday, August 8, 2007. Mr. Bona will be giving a presentation in One West at 9:00 a.m. in which he is expected to discuss recent changes in the CERN safety system. Anyone who is interested is invited to attend.

Professional Development

New classes are always being added to the professional development schedule. For the most up-to-date course offerings, go to the [web page](#).

[Additional Activities](#)