

Calendar

Thursday, April 6

12:00 p.m. Wellness Works Brown Bag

Seminar - 1 West

Speaker: M. Kinzler (Registered Dietician and Licensed Dietician)

Title: Cholesterol Countdown: How to Lower Your Cholesterol by Changing Your Diet

2:30 p.m. Theoretical Physics Seminar - Theory Conf Rm WH-3NE

Speaker: P. Nadolsky, Argonne National Laboratory

Title: Transverse Momentum

Resumation for Higgs Boson Searches

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m. Accelerator Physics and

Technology Seminar - 1 West

Speaker: S. Mishra, Fermilab

Title: ILC Accelerator R&D at Fermilab

THERE WILL BE NO ACCELERATOR

PHYSICS AND TECHNOLOGY

SEMINAR TODAY

Friday, April 7

12:30 p.m. Theoretical Astrophysics

Seminar - Special Edition Speaker:

Syksy Rasanen (CERN)

Title: Accelerated expansion from structure formation

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m. Special Lecture - Ramsey

Auditorium

Speaker: M. Shermer, Skeptics Society

Title: The Science of Good and Evil

THERE WILL BE NO JOINT

EXPERIMENTAL THEORETICAL

PHYSICS SEMINAR THIS WEEK

Fermilab's zebra mussels: Visiting without a pass



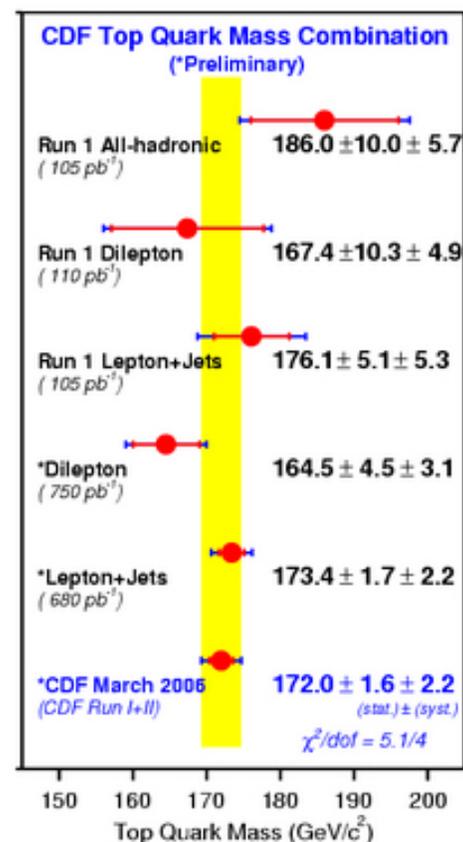
Zebra mussels are a nuisance in many industrial plants, where the tiny "veligers" get into the water cooling systems and attach themselves to the pipes. They are listed as an invasive species by the USDA. (Click on image for larger version.)

Fermilab's water-cooling pipes are teeming with zebra mussels. *Dreissena polymorpha*, a small freshwater mussel with zebra-striped shells, hitched a ride to the US on a ship from the Baltic about 20 years ago. When the ship dumped its ballast water into Lake St. Croix in Minnesota, the zebra mussels got dumped with it. With each adult producing as many as one million offspring per year, and no natural predators in the area, they soon got themselves onto the U.S. Fish and Wildlife Service's A-list of invasive species.

For about five years, the mussels have been taking over the more than 20 miles of pipeline under Fermilab, clogging the channels that connect the lab's ponds to the underground system that cools the equipment. "The numbers are beyond your imagination," said engineer Anne Lucietto of Facilities Engineering

Fermilab Result of the Week

Over the top



Summary of CDF's best top quark mass results from Run I and Run II. These are combined to yield the top-quark mass shown in the last point. More details can be found [here](#). (Click on image for larger version.)

Measurements of the top quark mass at the Tevatron have reached levels of precision that have surpassed expectations, providing a stringent consistency check of the Standard Model.

The mass of the top quark is interesting because it is so large. The top quark is 35 times more massive than the next heaviest matter particle, the bottom quark, and twice as massive as the particles which carry the electroweak force. Because of this feature, a precise

WeatherChance of Showers **55°/45°**[Extended Forecast](#)[Weather at Fermilab](#)**Current Security Status**[Secou Level 3](#)**Wilson Hall Cafe****Thursday, April 6**

- Minnesota Wild Rice w/Chicken
- Tuna Melt on Nine Grain
- BBQ Ribs
- Chicken Casserole
- Buffalo Chicken Wrap
- Mexican Pizza
- Mandarin Chicken Salad

[Wilson Hall Cafe Menu](#)**Chez Leon****Thursday, April 6****Dinner**

- Minestrone
- Grilled Lamb Chops
- Celery Root & Potato Mash
- Vegetable of the Season Cassata

Wednesday, April 12**Lunch**

- Barbecued Pork Ribs
- Braised Greens
- Carrots Marsala
- Vernazza Cake

[Chez Leon Menu](#)

Call x4512 to make your reservation.

Search**Search the Fermilab Today Archive**

Services Section.

Divers cleaning out the intake pipes in Casey's Pond found the one-to two-inch mussels coating the walls in a layer nearly a foot thick. As of today, they have removed nearly 8,000 pounds of mussel.

How the mussels arrived in the Fox River is a mystery. But "veligers"--zebra mussels in an early stage of development--can't be seen with the naked eye. They can catch rides on everything from scuba gear to the water on the back of a goose--another Fermilab visitor whose numbers seem beyond the imagination.

—*Jennifer Lauren Lee***Photo of the Day**

Winter is officially over. DZero's Jiri Kvita took pictures of the last bits of ice on site before they melted. (Click on image for larger version; courtesy of Jiri Kvita.)

Science Grid This Week**Predicting Extreme Weather With SCOOP**

measurement of its mass helps determine that of the Higgs particle, and suggests it plays a special role in electroweak theory.

Both CDF and DZero have established strong analysis teams to measure the mass of the top quark. CDF recently released five new results using 750 pb⁻¹ of data collected at the Tevatron. These analyses use a variety of techniques to measure the top quark mass in distinct subsets of the data called "channels." The most precise results in each channel from both Run I and II are combined together for even further precision. While CDF and DZero had originally planned to measure the top mass uncertainty to ± 3 GeV/c², this combination yields a top mass measurement of 172.0 GeV/c² with an uncertainty of only ± 2.7 GeV/c²!

Adding DZero's best Run I and Run II results yields a Tevatron combined result of $M_{top} = 172.5 \pm 2.3$ GeV/c², a precision of 1.3 percent. Forthcoming results from both experiments using their full 1 fb⁻¹ data sets should allow a combined precision of 1 percent before the end of the year.

There are hints of an interesting situation in these new results. This top mass tends to indicate a Higgs mass in a range where the Tevatron is most sensitive, and where the LHC would have the hardest time making a discovery. If this mass value persists as more data accumulates, it might indicate that the current theory is failing to explain the data, serving as our first hint of new physics beyond the Standard Model.

Info

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Hurricane Katrina simulations and observations created using OpenIOOS and SCOOP technology. *Image Courtesy OpenIOOS*

When a storm threatens the coastal United States, emergency-response managers look to scientists to help them prepare for potentially catastrophic consequences. Accurate predictions of the environmental response to extreme weather keep disaster recovery costs down and help save lives. Creating accurate and timely predictions requires bringing many different types of data from many different organizations together with a large amount of on-demand computing power—a task uniquely suited to cyberinfrastructure and grid computing.

[Read More](#)

In Memoriam

Deacon Ed Lober

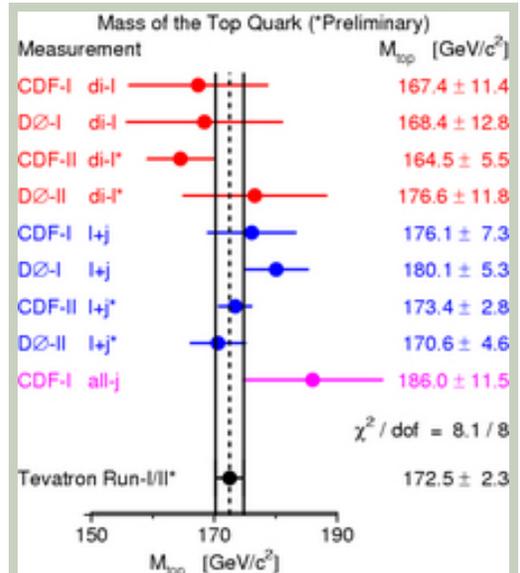
Former Fermilab FESS employee Deacon Ed Lober, 72, died of a heart attack last Sunday, March 26, while visiting family at Pittsburgh. He was buried last Thursday in Pennsylvania. There will be a memorial mass at [Holy Cross Church](#) in Batavia.

In the News

LLNL Press Release, March 30, 2006: MINOS experiment sheds light on how neutrinos change 'flavors'

LIVERMORE, Calif. — Scientists have successfully observed the transformation of neutrinos – a particle that is relatively massless, has no electric charge, yet is fundamental to the structure of the universe – from one type to another.

The international team, including



Summary of the best top-quark mass results from Run I and Run II from both CDF and D0. These are combined to give the most precise determination of the top-quark mass. This world average is shown as the last point and is described in more detail [here](#). (Click on image for larger version.)

[Result of the Week Archive](#)

Announcements

Come early to All-Hands meeting April 7

Secretary of Energy Samuel Wright Bodman will visit Fermilab on Friday morning, April 7. After a brief tour of the lab, he will hold an All-Hands meeting in Ramsey Auditorium at 11:00 a.m. Please plan to arrive by 10:45. Streaming video will be [available](#), but Fermilab employees are encouraged to attend in person.

English Country Dancing

English country dancing will continue at Fermilab's Barn, generally meeting the last Sunday afternoon of the month. The next session will be at 2 p.m., Sunday, April 30. The group is currently soliciting input from potential participants on their preferences for a meeting time during the summer. Please contact folkdance@fnal.gov or call 630-584-0825 or 630-840-8194.

Livermore physicists Peter Barnes, Doug Wright and Ed Hartouni, working on the Main Injector Neutrino Oscillation Search (MINOS) project, today (March 30) announced the first results of a new neutrino experiment.

[Read More](#)

Science of Good and Evil

Skeptic magazine publisher and *Scientific American* columnist Michael Shermer will discuss "The Science of Good and Evil," a special lecture on Friday, April 7 at 4 p.m. in Ramsey Auditorium. His lecture will cover the most fundamental questions we can ask about our relationship with the universe: What is the nature of evil? Does justice exist beyond the social order? Why do bad things happen to good people?

[Upcoming Activities](#)