

Calendar

Wednesday, May 10

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m. Fermilab Colloquium - 1 West

Speaker: E. Spafford, Purdue University

Title: The Cyber Security Crisis

THERE WILL BE NO FERMILAB ILC

R&D MEETING THIS WEEK

Thursday, May 11

11:00 a.m. Academic Lecture Series -

Curia II Speaker: D. Green, Fermilab

Title: High-pt Hadron Collider Physics –

Course 8 (2nd Lecture)

2:30 p.m. Theoretical Physics Seminar -

Curia II

Speaker: F. Petriello, University of

Wisconsin/Fermilab

Title: Getting Ready for the LHC: QCD at

Next-To-Leading Order and Beyond

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m. Accelerator Physics and

Technology Seminar - 1 West Speaker:

M. Furman, Lawrence Berkeley National

Laboratory

Title: Electron Cloud Simulations for the

LHC and Main Injector

[Click here](#) for links to descriptions of each event.

Weather



Chance of Showers **71%/51%**

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

Sloan Digital Sky Survey: the ultimate supernova tracker

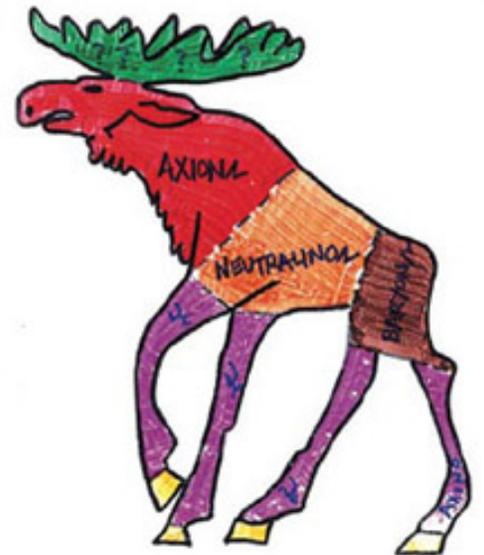


The Andromeda Galaxy, captured by the SDSS in 2002. In the forefront, a satellite galaxy is "eaten" by Andromeda, the closest major galaxy to the Milky Way. (Click on image for larger version.)

When it comes to charting the explosive, spectacular deaths of massive stars, the Sloan Digital Sky Survey has something most telescopes don't. Although its mirror is a moderately sized 2.5 meters across, a large digital camera allows it to take broad swaths of data at once, making it ideally suited to track supernovae. "The Sloan Survey is by far the most ambitious survey of the sky that has ever been undertaken," said Joshua Frieman, theoretical astrophysicist at Fermilab. From New Mexico, the SDSS sends its data to Fermilab for processing before it is analyzed by collaborators all over the world.

One kind of supernova occurs when a white dwarf--a star that has burned up all its hydrogen--begins sucking in mass from a companion star. At some point, the white dwarf becomes unstable and explodes with the brilliance of a hundred billion ordinary stars. "It takes a few weeks for the supernova to get as bright as it is going to get, and a few months for it to fade," said Gajus Miknaitis, a

New report gives context for the study of very small things



Discovering the Quantum Universe explains the goals and achievements of particle physics. The Dark Matter Moose is one of many "postcards from the Terascale" found in the report. (Illustration courtesy of Michael S. Turner; click image to see full report.)

At yesterday's [R&D Caucus](#) on Capitol Hill, the High Energy Physics Advisory Panel [launched](#) a brand-new report. Titled, *Discovering the Quantum Universe*, the report explains how researchers seek to understand the universe by studying the "microscopic and subatomic" world of quantum physics. In simple language, it describes the meaning of the Higgs boson, the quest to understand dark matter, extra dimensions and the inexplicable lack of antimatter in the universe, and it describes possible ways to realize Einstein's dream of finding an ultimate, unified force to explain all of nature.

The report asserts that these seemingly insurmountable concepts might be tackled using particle accelerators.

[Secon Level 3](#)**Wilson Hall Cafe****Wednesday, May 10**

- Italian Wedding w/Meatballs
- Texas Style Meatloaf Sandwich
- Diner Style Patty Melt
- Chicken a la Mer
- Stuffed Cabbage
- Greek Chicken Panini with Feta Cheese
- Sicilian Style Pizza

The Wilson Hall Cafe accepts Visa, Master Card, Discover and American Express.

[Wilson Hall Cafe Menu](#)

Chez Leon**Wednesday, May 10****Lunch**

- Curried Turkey Salad w/Cashews on Field Greens
- Melon with Greens

Thursday, May 11**Dinner**

- Zucchini Pancakes with Smoked Salmon & Yogurt Dill Sauce
- Veal Rib Chops with Sun Dried Tomatoes & Capers
- Fettuccini Alfredo
- Amaretto Soufflé with Frangelico Crème Anglais

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Search

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Info

postdoc in Fermilab's Experimental Astrophysics Group. To find and measure supernovae, astronomers take repeated images of the same patch of sky, comparing how the brightness of their target objects changes with time.

All supernovae that come from white dwarfs have roughly the same peak brightness, making them useful for solving one of the biggest mysteries in physics today: that of dark energy. "It's a name for whatever is causing the expansion of the universe to speed up," says Fermilab's John Marriner, a collaborator on the project. If the universe began with a big bang--as the evidence strongly suggests--gravity should slow its acceleration with time. But now evidence indicates the universe has stopped slowing down and is speeding up. "That doesn't happen if the universe is filled with normal matter," Frieman says. To understand dark energy better, astronomers use the standard peak brightness of supernovae to tell how far away objects are in the sky, measuring precisely how fast the universe has been expanding in different periods of cosmic history.

--Jennifer Lauren Lee

In the News

Space.com, May 8, 2006: Recycled Universe: Theory Could Solve Cosmic Mystery

One of the biggest mysteries in cosmology could be explained by a controversial theory in which the universe explodes into existence not just once, but repeatedly in endless cycles of death and rebirth.

Called the cyclic universe theory, it could potentially explain why a mysterious

"Starting with the discovery of the electron, particle physicists have ventured successively deeper into the unseen world within the atom," it states. "They have discovered a structure and simplicity neither expected nor predicted, even by Einstein."

You can find *Discovering The Quantum Universe* online [here](#). A full report from the R&D Caucus, which included a lecture by best-selling author Brian Greene, will appear in Friday's issue of *ILC NewsLine*.

--Siri Steiner

Announcements**Striping D Road**

The paving is complete on D Road. Striping is scheduled to begin Wednesday morning May 10, weather permitting. Motorists should expect short delays and may choose to use [alternate routes](#). Please slow down, obey traffic controls and stay alert.

Batavia Road entrance closed to cars and bicycles

The Batavia Road entrance is closed for renovation now through Monday, May 22 at 4:00 p.m. During this time, the City of Warrenville will also be repaving roadways and carrying out other construction work along Batavia Road. Delays are expected to continue until early June, even after the entrance re-opens. Drivers and bicyclists should use Pine and Wilson Street entrances until the work is completed. Pine Street entrance hours are 6:00 a.m. to 8:00 p.m. for the general public and 24 hours a day, 7 days a week for employees. The Wilson Road entrance hours are 6:00 a.m. to 6:00 p.m., Monday through Friday. For more information, contact Tom

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repulsive form of energy known as the "cosmological constant" and which is accelerating the expansion of the universe is several orders of magnitude smaller than predicted by the standard Big Bang model.

In a new study detailed in the May 5 issue of the journal Science, Paul Steinhardt of Princeton University and Neil Turok of Cambridge University propose that the constant was once much larger, but that its value decayed with each incarnation of the universe.

The cosmological constant, also known as "lambda", is thought to be a form of energy that gravitationally repels itself and causes the expansion of the universe to speed up.

Einstein initially proposed it as a counterforce to the gravitational attraction of matter to explain why the universe appeared static, neither growing nor shrinking. He later discarded the idea, however, when observations by astronomer Edwin Hubble revealed the universe was in fact expanding.

[Read More](#)

Prosapio at prosapio@fnal.gov

Main Ring Road, near A0, closed Monday-Friday

A section of Main Ring Road in front of the A0 storage building will be closed from 7:00 a.m. Monday, May 8, to 5:00 p.m. Friday, May 12. The emergency closure is necessary to replace an oil switch. People using the A0 lot should allow time for a 4-mile detour. Detour signs will be posted.

Fundraiser for John LaFleur: Dunk tank volunteers needed!

The City of Batavia will host a fundraising event for the family of John LaFleur on May 13 from 2-8 p.m. LaFleur was a Fermilab electrician who passed away March 26 as a result of complications from a brain tumor. He is survived by a wife and three children and had not worked at Fermilab long enough before his death to receive a pension. Tickets are available through Greg Gilbert, x6835 or gilbert@fnal.gov. Gilbert is also looking for Fermilab volunteers to take a shift in the dunk tank. Details about the event, including location, can be found [here](#).

[Upcoming Activities](#)