

## Calendar

[Have a safe day!](#)

Thursday, August 20  
2:30 p.m.

[Theoretical Physics Seminar](#) -  
Curia II

Speaker: Myeonghun Park,  
University of Florida  
Title: The Latest and the  
Greatest Tricks for Studying  
Missing Energy Events (PART  
III)

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO  
ACCELERATOR PHYSICS  
AND TECHNOLOGY  
SEMINAR TODAY

4 p.m.

[Extreme Beam](#) - Physics at the  
Intensity Frontier Lecture

Series - One West

Speaker: Augusto Ceccucci,  
CERN

Title: Rare Kaon Decays:  
Extreme Physics with Extreme  
Beams

Friday, August 21

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO JOINT  
EXPERIMENTAL-  
THEORETICAL PHYSICS  
SEMINAR TODAY

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

## Campaigns

[Take Five](#)

[Tune IT Up](#)

## Weather

## University Profile

### Michigan State University



Michigan State University Experimental High Energy  
Physics Group: Front row from left: Brenda  
Wenzlick, Tom Rockwell, Kirsten Tollefson, Maris  
Abolins, Chip Brock and Bernard Pope. Second row  
from left: Reinhard Schwienhorst, Mike Nila, Philippe  
Laurens, Wade Fisher, Dan Edmunds and Jim  
Linnemann. Not pictured: Joey Huston, Carl  
Bromberg, Jim Kraus, Reiner Hauser, Yuri Ermoline,  
Pat Ryan, Sarah Heim, Alessandro di Mattia,  
Weigang Geng, Ron Richards, James Koll, Joel  
Piper, Jenny Holzbauer, Brian Martin and Patrick  
True.

NAME:

[Michigan State University](#)

HOME TOWN:

East Lansing, MI

MASCOT:

[Sparty](#) (Three time national  
champion mascot, voted  
"Buffest Mascot" by *Muscle and Fitness*  
Magazine.)

SCHOOL COLORS:

Green (Pantone 341, to be exact) and white

PARTICLE PHYSICS

COLLABORATIONS:

DZero, CDF, NOvA, ArgoNeut, ATLAS, Milagro/  
HAWC, E743, E629, E706, E594, E703, CTEQ  
and R110

EXPERIMENTS AT FERMILAB:

DZero, CDF, NOvA, ArgoNeuT, E743, E629,  
E706, E594, E703, E663, E585, E383, E743,  
E629, E382, E366, E319, E311, E281 and E12.

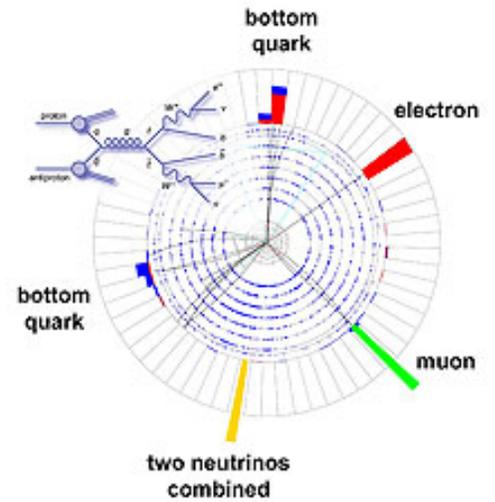
SCIENTISTS AND STUDENTS AT  
FERMILAB:

Eight faculty, seven students, one postdoc and  
three engineers and computing professionals



## Fermilab Result of the Week

### We've come a long way...



Top and antitop quarks are generally created in  
pairs. Events in which the quarks decay so that  
there are two leptons (electrons and/or muons)  
after all decays are especially useful in this kind of  
measurement. The above shows an actual event  
display that includes an informative diagram.

The spring of 1995 was an incredibly exciting  
time for Fermilab. The top quark discovery had  
just been announced. DZero's discovery paper  
reported a handful of collisions that "looked"  
like they could have been the creation of top  
quarks. (The numbers of events reported by  
CDF in their own discovery paper were  
comparable.) Those scant 17 events had a  
huge impact on our understanding of the  
Standard Model.

Returning to the present, we can review our  
current understanding of top quarks. By  
exploiting the extra beam delivered by the  
Tevatron -- which is currently more than a  
hundred times the amount of beam delivered  
to the detectors in 1995 -- we can use our  
much larger data set and truly study them.

A top quark is the most massive fundamental  
particle known. This property makes it a very  
attractive object to study. For one thing, its  
heavy mass makes it decay before it can be  
incorporated into more complex particles, such  
as mesons and baryons. So, studying top  
quarks provides a way to directly probe the  
details of quark production.

One of quarks' interesting properties is their  
subatomic spin. You can think of quarks as  
little spinning tops. Spin is conserved, which



Thunderstorms likely  
79°/62°

[Extended Forecast](#)  
[Weather at Fermilab](#)

[Current Security Status](#)

[Secon Level 3](#)

[Wilson Hall Cafe](#)

Thursday, August 20  
- Santa Fe black bean  
- Steak tacos  
- Chicken Wellington  
- Chimichangas  
- Baked ham & Swiss on a ciabatta roll  
- Assorted sliced pizza  
- Crispy fried chicken ranch salad

\*Carb restricted alternative

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

Thursday, August 20  
Dinner  
- Fresh mozzarella & tomato salad  
- Garlic shrimp w/ red peppers & wild mushrooms  
- Lemongrass rice  
- Sautéed spinach w/ garlic & lemon  
- Brandy flan

Wednesday, August 26  
Lunch  
- Catfish w/coarse mustard  
- Roasted corn and red peppers  
- Spicy tomato rice  
- Chocolate pecan pie

[Chez Leon Menu](#)

Call x3524 to make your reservation.

[Archives](#)

COLLABORATING AT FERMILAB SINCE: Fermilab opened.

MAJOR CONTRIBUTIONS TO FERMILAB EXPERIMENTS:

For more than 30 years, the MSU Group has specialized in Level 1, Level 2 and Level 3 trigger electronics and software; calorimetry; large-scale scintillator/phototube production; and software design for Fermilab's neutrino, DZero and CDF projects. In addition, all faculty members have been leaders, spokespersons and conveners in technical and physics groups for all of their Fermilab experiments.

PARTICLE PHYSICS RESEARCH FOCUS:

W-mass determination, top quark pair physics, single-top physics, QCD jet physics, searches for new phenomena, Higgs Boson searches, photon/di-photon production, W+jets physics, underlying-event studies, neutrino oscillations, multiple phenomenology collaborations and statistical analyses.

WHAT SETS PARTICLE PHYSICS AT MICHIGAN STATE UNIVERSITY APART?

Excellent technical staff and support, outstanding collaboration between HEP experimenters and theorists (CTEQ home), a congenial and cooperative atmosphere within the HEP group and three decades of terrific support from the department and the university.

FUNDING AGENCY:  
National Science Foundation

FAVORITE NATIONAL LABORATORY:  
Fermilab



View all [University profiles](#)

Feature

means that if you know the spin of one particle and the specific particle-producing process involved, you should know exactly the spin of another one produced at the same time. In the context of top quarks, because they are produced in pairs (i.e. every quark comes with an antiquark,) if you know the spin of one, you can precisely predict the spin of the other.

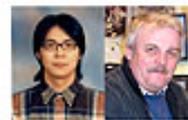
DZero scientists recently [measured](#) the spins of pairs of top quarks and compared them to theory. This method directly tests heavy quark production in the Standard Model, and is much more precise than a similar analysis done in Run I. The analysis agreed with calculations and highlights the top quark's transition from discovery to careful measurement. Had a disagreement been observed, the predicted mechanisms of top quark production would have received additional scrutiny.

The top quark has sure come a long way...

-- Don Lincoln



Sungwoong Cho, Korea University, Korea; Mike Eads, U. Nebraska; Dave Hedin, Northern Illinois University



Myeongmang Lee, Korea University, Korea; Yuriy Yatsunenko, JINR, Dubna, Russia

Muons are present in collisions in which the electroweak force has played a role, including the decay of top quarks. The muon ID group is constantly working to ensure that scientists can efficiently identify muons in the data.



These physicists played a crucial role in this analysis.

Special Announcement

[Fermilab Today](#)[Result of the Week](#)[Safety Tip of the Week](#)[User University Profiles](#)[ILC NewsLine](#)**Info**[Fermilab Today](#)

is online at:

[www.fnal.gov/today/](http://www.fnal.gov/today/)

Send comments and

suggestions to:

[today@fnal.gov](mailto:today@fnal.gov)

Visit the Fermilab

[home page](#)**Laboratory releases Physics Advisory Committee report**

The Fermilab Physics Advisory Committee met in Aspen, Colorado, June 23-26, for its annual summer session to review aspects of the Fermilab science program. The charge to the committee and its comments and recommendations are now available via links from the [PAC Web page](#).

As usual, this summer's meeting focused more on the overall physics program and strategy than is possible at shorter meetings at other times of the year.

The PAC is a major source of advice to the director about the future direction of Fermilab's experiments and programs. Ever since Fermilab's early days, the PAC's recommendations and comments have offered insight into opportunities and issues important to members of the laboratory community.

The PAC is composed of senior scientists from universities and high-energy physics laboratories in the U.S. and abroad. Fermilab benefits greatly from the knowledge and experience of its PAC members. They represent a wide range of expertise in various subfields, and bring different perspectives to discussions of the Fermilab research program, especially in the context of worldwide efforts.

The next PAC meeting will take place Nov. 12-14, 2009.

**Photo of the Day****New employees - Aug. 3**

From left: Oleg Brandt, PPD; Karen Prosapio, WDRS; and Don Gustafson, CD.

**In the News****Extreme Beam lecture today at 4 p.m. in One West**

Another lecture of the Extreme Beam series will take place at 4 p.m. today in One West. Augusto Ceccucci, spokesperson for NA62 at CERN, will give a talk titled "Rare Kaon Decays: Extreme Physics with Extreme Beams." A reception will follow.

The lecture series, which will feature talks at Fermilab throughout 2009, will give in-depth information about the science and accelerator and detector technologies that will create a world-leading physics program at the Intensity Frontier.

Visit the [Extreme Beam Web site](#) for more information.

**Announcements****Latest Announcements**

[NALWO Noon Piano Concert in Ramsey Auditorium - Aug. 27](#)

[Try Tai Chi at Open House for Free - Aug. 24](#)

[Goldwasser 90th birthday](#)

[Giving a presentation? Need practice? Feedback? Fermilab Toastmasters Club is for you - today](#)

[Vacation policy changes for exempt employees - Sept. 1](#)

[English Country Dancing, Sept. 20](#)

[American Cancer Society announces winners of drawing](#)

[Bowlers wanted](#)

[Thai Village restaurant discount](#)

[Argentine Tango through Sept. 9](#)

[Fermilab Blood Drive Aug. 25 and 26](#)

[What's New in NI LabVIEW 2009? Aug. 27](#)

[URA Visiting Scholars Program now accepting applications](#)

[Bristol Renaissance Faire discount tickets](#)

## Recovery Act scores trifecta by stimulating science

From *EyeOnTechnology*,  
Aug. 19, 2009

To most people, the American Recovery and Reinvestment Act is about creating jobs. So, why should it include more than \$327 million in new funding announced early this month go toward scientific research, instrumentation, and laboratory infrastructure projects?

The answer is that job creation, while the primary concern, is not the only consideration the Obama Administration has when deciding where to put our tax dollars. If possible, they like to see projects that provide long-lasting benefits that keep on giving long after the jobs are created.

In addition to immediate job creation, dollars spent on scientific research stimulate advances in the technology our society depends on, and generate business for high technology companies. That's a trifecta that few infrastructure projects - and no make-work projects - can equal.

[Read more](#)

[Six Flags Great America discount tickets](#)

[Raging Waves Waterpark online discount ticket program](#)

[Mosaico Hispanico - celebrating Hispanic music and dance - Sept. 19](#)

[Sign up for fall Science Adventures classes](#)

[Office 2007 New Features class offered in September](#)

[Buttered Rum performs at Fermilab Arts Series Oct. 24](#)

[Fred Garbo Inflatable Theatre at Fermilab Arts Series - Nov. 7](#)

[Process piping \(ASME B31.3\) class offered in October and November](#)

["The Night Before Christmas Carol" - at Fermilab Arts Series - Dec. 5](#)

[Additional Activities](#)

[Submit an announcement](#)