

# This Week in Physics

SYRACUSE UNIVERSITY  
*College of Arts & Sciences*

Week of  
April 6, 2009

[http://www.phy.syr.edu/  
SeminarsEvents.htm](http://www.phy.syr.edu/SeminarsEvents.htm)

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## MONDAY, APRIL 6

Gravitational Waves Seminar

2:30 PM, Rm 202

Dr. Joshua Smith (Syracuse University)

*Vetoed to aid the detection of gravitational-wave bursts*

## TUESDAY, APRIL 7

Colloquium

4:00 PM, Rm 202 (refreshments 3:30 PM)

Dr. Joshua Smith (Syracuse University)

*Toward gravitational-wave detection and astronomy with LIGO*

Direct observation of gravitational waves will be one of the most important scientific events of this century. Most of our current astrophysical knowledge has been obtained through electromagnetic radiation. Gravitational waves will open a new and fundamentally different window on the universe. The Laser Interferometric-Gravitational Wave Observatory has demonstrated sensitivity at its design level and completed a two-year long data run which is being searched for gravitational wave signals. Currently two of the LIGO detectors are being enhanced and will start a more sensitive data run in Summer 2009. In parallel, construction of Advanced LIGO, a major upgrade to LIGO, has begun. Advanced LIGO will be ten times as sensitive as initial LIGO - sensitive enough to detect several gravitational wave signals per year and usher in an era of gravitational-wave astronomy. The road to improved sensitivity is paved with careful study of the noises that limit each detector, and hard work to remove these. In this talk I will describe some of the important noise sources for LIGO and methods used to identify them.

## THURSDAY, APRIL 9

Colloquium

4:00 PM, Rm 202 (refreshments 3:30 PM)

Prof. Steve Nahn (MIT)

*On the Edge of the LHC Era*

Particle physicists have been holding their collective breath for a few years now in anticipation of the opening of a new window on High Energy interactions with the turn on of the Large Hadron Collider at CERN. If all goes well, this fall we should finally be able to exhale. After a brief "big picture" overview, I will convey the preparedness of the Compact Muon Solenoid experiment to exploit this opportunity and describe the physics resolution for early measurements at the LHC.

## FRIDAY, APRIL 10

Condensed Matter/Biological Physics Seminar

11:00 AM, Rm 202

Prof. Andre Marziali (University of British Columbia)

*Electrophoretic methods for nucleic acid manipulation and analysis*



Charlie didn't know which was harder to work out - quantum physics or his wife's mind.