

2010 spring

COAST to COAST

Canadian Seminar Series high energy physics

PST
11:30

MST
12:30

CST
13:30

EST
14:30

AST
15:30

NST
16:30

JANUARY 19, 2010

PIERRE SAVARD, University of Toronto, TRIUMF
A Tour of Particle Physics

Particle physics is entering a new era with the startup of the Large Hadron Collider (LHC) at CERN in Geneva. This revolutionary new instrument will open the door to many new discoveries that will shed light on the structure of the Universe at the highest energy scales ever studied. This talk is a survey of the important open questions in particle physics, many of which will be addressed at the LHC. It will also serve as an introduction to the subsequent colloquia in the Coast-to-Coast series for winter/spring 2010.

FEBRUARY 2, 2010

MICHEL VETTERLI, Simon Fraser University, TRIUMF
**Experimental Techniques in Particle Physics or
What are they *really* doing in Geneva?!**

With the recent startup of the Large Hadron Collider (LHC) at CERN in Geneva, there has been renewed interest in particle physics, which has led to a plethora of articles and presentations for the public on "what" is being done at the new experiments. This colloquium will present not the "what", but the "how". How do physicists study Nature at incredibly small distance scales? This talk will present the basic physics concepts involved in experimental subatomic physics. It will also discuss the large-scale computing necessary to mine the data from particle physics experiments, as well as the advanced analysis techniques required to extract very rare events from the preponderance of well-understood background processes.

FEBRUARY 16, 2010

ROB MCPHERSON, University of Victoria, Institute of Particle Physics
Probing the Origin of Mass: the First Light of ATLAS Data

Four decades of experimental results and theoretical developments point us to energies of one trillion electron volts, or about a thousand times the mass of the proton, to search for the processes that give mass to elementary particles. Reaching such high energies required a new particle accelerator, the Large Hadron Collider (LHC), which has recently begun operation at the CERN laboratory in Geneva, Switzerland. The physics case for the LHC and the massive ATLAS detector which records the results of the interactions that might produce the Higgs boson or other new particles is discussed, and an LHC status report including a first look at ATLAS data is presented.

MARCH 2, 2010

SCOTT OSER, University of British Columbia
The Unbearable Lightness of Being (A Neutrino)

If you took an electron and stripped away all of its charge and all of its mass, would you have anything left? Incredibly enough, the answer is yes---a neutrino! Invented originally as an "accounting trick" to balance the books in nuclear reactions, we now know neutrinos to be among the lightest and hardest to detect particles in the world. Billions of them are flying through your body as you read this abstract. I will explain what we know about these phantom-like particles and the unique challenges we face in studying their properties.

MARCH 16, 2010

BOB KOWALEWSKI, University of Victoria
The Generation Puzzle: Symmetries and Mysteries

The world we experience is essentially made of three fundamental particles: the electron and the two kinds of quarks that make up protons and neutrons. Yet nature has chosen to copy this structure at least twice more, with each copy heavier than the last. How have these extra "generations" shaped the universe we live in? Studies of particles containing the heavier quarks have revealed fascinating phenomena, among which are the spontaneous transmutation of matter into antimatter and back; and a mechanism for breaking matter-antimatter symmetry in the Universe. This talk will review the highlights of flavour physics from the discovery of "strange" particles through the present.

MARCH 30, 2010

CLIFF BURGESS, McMaster University, Perimeter Institute
Reading the Tea Leaves: What Lies Beyond the Standard Model?

The turn-on of the Large Hadron Collider (LHC) will likely fundamentally change our picture of how nature works on the smallest of distances we can probe. This lecture reviews the case for why failure to discover something is believed not to be an option; and what the successes and failures of the Standard Model tell us about what is likely to be, and not to be, out there awaiting discovery. Most proposals fall into three main categories, whose broad properties are outlined.

Seminar Locations

British Columbia

SFU - 10901, Applied Sciences
TRIUMF - TBD
UBC - x521, ICICS/CS
UBC-OK - 337, Fipke Centre

Alberta

UofL - L1116, CRDC
UofC - 540B, Biosciences
UofA - 315, GSB

Ontario

Brock - F313, Mckenzie Chown Complex
Fanshawe - 1013, G
Lakehead - 5037, AT
Laurentian - 74A, FA
McMaster - 131-J, ABB
Nipissing - TBA

Saskatchewan

UoFS - 2D71, Agriculture

Manitoba

UofM - E2-568, EITC Building

Ontario

OCAD - 287
Perimeter - TBD
Sheridan - S213, SCAET
Trent - 108, SC
UofG - 016, Reynolds
UofOIT - 4080, UA

Nova Scotia

Dalhousie - 305, Chase Building
St. Francis Xavier - 205, 42 West St.

Ontario

UofT - SciNet Video Conf. Rm., 256 McCaul St.
UofWaterloo - 374, Physics
UofWO - 132, WSC
UofWindsor - G142, Lambton Tower
WLU - 113, SR
York - 1012, TEL

New Brunswick

Mount Allison - G02, Bennet
UNB - GE131, Gillin Hall

Newfoundland

Memorial - ER4015, Earth Sciences

Halifax

Saint Mary's - 127, Science Bldg

For more information:

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