

# SEMINAR NOTICE

*Department of Physics and Engineering Physics  
University of Saskatchewan*

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**SPEAKER:** Dr. Mark Boland, Honorary Principal Fellow  
University of Melbourne

**TOPIC:** *Blinded by the Light: The rise and rise of light sources and Accelerators in science.*

**DATE:** November 8th, 2016

**TIME:** 3:30-4:30 p.m.

**PLACE:** Physics 103

## **ABSTRACT:**

Throughout the history of scientific discovery new sources of light have led to new discoveries. Modern synchrotron light sources, like the Canadian Light Source, are now the go-to laboratories for scientists to solve problems in a very broad range of disciplines. Powering synchrotrons are high energy particle accelerators which have their origins in nuclear and particle physics. The first particle accelerators were small table-top devices made by one skilled person --like the Crookes Tube -- while today the largest particle accelerator is the 27 km long Large Hadron Collider requiring thousands of people to build. Now into their fourth generation of design type, accelerator based light sources show no sign of slowing down in popularity. Billions of dollars are being invested in new particle accelerators globally due to their usefulness in scientific discovery. There is little wonder why given the Nobel Prize winning discoveries made with accelerators, from fundamental particles like the Higgs Boson to complex protein structures and their functions in the human body. Particle accelerators are also used to treat cancers and produce vital nuclear medicine for humans, as well as numerous industrial applications like sterilization and ion implantation for electronics. There are estimated to be over 30,000 particle accelerators world-wide. This seminar will go on a whirlwind tour of the history of accelerators, the physics that make them work, some current research programmes and a provide glimpse of what the future might hold.

*Coffee and Cookies will be served in Physics 103 at 3:00 p.m. for those attending the seminar.*