SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Dr. Andy Kubik, CAP Lecturer
SNOLAB

TOPIC*:* ***A Universe-Wide Mystery: What is Dark Matter and How Might We Detect it?***

DATE: Tuesday March 21st, 2023

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

PLACE: ***Physics 103***

Abstract:

There is strong evidence that 27% of the energy density of our universe is composed of a type of matter unlike anything currently known, the existence of which has only been inferred by observing its gravitational effects on the visible universe. However, all of this so-called "Dark Matter" has yet to be directly detected experimentally. Even hints of its nature could open up an entirely new understanding of fundamental physics, which has prompted scientists across the world to develop a huge range of theoretical candidates which may fit the observations and an almost equally huge variety of experimental efforts to search for those candidates. These experiments are pushing the boundaries of current technology and often require fairly extreme conditions to operate, for example an extremely large mass (tons) to catch an ultra-rare interaction, or sub-Kelvin temperatures to help see the tiniest of signals, or being kilometres underground to reduce the backgrounds from less exciting already well known particles. This push for discovery has also driven rapid progress in research and development of exciting detector technologies for hunting these elusive particles. This talk will give an overview of the current evidence of Dark Matter, why it has been so tricky to detect so far, and a sample of the range of experiments looking in all corners for a solution to this open question.

Coffee and Tim Bits with the speaker will be available in Phys 177 at 3:00pm