



# PHYSICS AND ASTRONOMY SEMINAR

## Dr. Viktor Zacek

Université de Montréal

# “Search for Dark Matter with PICASSO”

### Abstract

PICASSO at SNOLAB searches for spin-dependent WIMP interactions on  $^{19}\text{F}$  using the superheated droplet technique. This technique is based on the bubble chamber principle, where phase transitions in superheated liquids can be triggered by WIMP induced nuclear recoils. The physics of the detection process allows a highly efficient suppression of backgrounds from cosmic muons, gamma- and beta-rays. In this talk we will discuss recent progress in PICASSO and its present sensitivity for WIMP searches. We will also describe an important new background suppression mechanism, which allows a powerful discrimination of alpha particle induced events. Finally I shall discuss future, larger scale applications of this technique at the scale of 100 kg and more.

Friday, March 09, 2012

11:00 a.m.

Human & Social Development Building  
Room A264