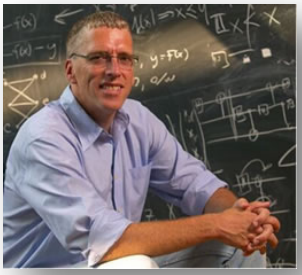
# DEPARTMENT OF PHYSICS

**Proudly Presents The**

## Canadian Association of Physicists (CAP) Lecture Series



**Speaker:**

## Dr. Cliff Burgess

*McMaster University / Perimeter Institute*

# *"The Dog that Didn't Bark: The Cosmological Constant Problem and the Puzzle of Dark Energy"*

The ('old') Cosmological Constant Problem, which asks why the vacuum zero-point energy appears not to gravitate, was a theoretical thorn in our collective sides even before the Dark Energy was discovered. This talk reviews why it is regarded to be a problem, and argues that its solution is likely to be the biggest clue we have about the nature of Dark Energy. A set of minimal criteria are formulated against which proposed solutions to the problem can be judged, and most proposals found to fail. Finally I argue why I believe that a solution to the Cosmological Constant Problem exists and is telling us why the LHC should not see superpartners for ordinary particles, even though it also implies that supersymmetry must exist and be important at low energies.

*Short biography*

*Cliff Burgess was born in Manitoba and was raised in various places around Western Canada, Ontario and Europe. He received his B.Sc. in a co-op programme, with a joint honours in Physics and Applied Math from the University of Waterloo. He did his doctoral work in Theoretical Particle Physics at the University of Texas in Austin under the supervision of Steven Weinberg. After doing a short postdoctoral stint at the Institute for Advanced Study in Princeton, in 1987 he joined the faculty at McGill University, where he was made James McGill Professor in 2003. He is presently a professor with McMaster University's department of Physics and Astronomy and is an Associate Faculty Member at Perimeter Institute for Theoretical Physics. He has spent sabbatical years with the Institute for Advanced Study in Princeton as well as the University of Neuchatel and CERN in Switzerland. Cliff was a Killam Fellow from 2005 – 2007 and elected a fellow of the Royal Society of Canada in 2008. He received the Canadian Association of Physicists/Centre de Recherches Mathematiques (CAP-CRM) prize for theoretical physics in 2010.*

**DATE:** **TUESDAY, JANUARY 14, 2014**

**TIME:** **1:30** PM

**Room:** **BB 1021**

Lakehead UNIVERSITY

*Event and Refreshments Generously Sponsored by NSERC*