



The University of Western Ontario  
DEPARTMENT OF PHYSICS AND ASTRONOMY

## 1<sup>st</sup> Annual Theoretical Physics Public Lecture

**Date:** WEDNESDAY, 25<sup>th</sup> February 2009  
**Time:** 4:30 p.m.  
**Location:** Conron Hall, UC 224

### Dr. Neil Turok

Director of the  
Perimeter Institute for Theoretical Physics  
Waterloo ON

### *"What Banged?"*

#### ABSTRACT

Over the last two decades, our knowledge of the Universe has vastly improved. Powerful new observations have lent overwhelming support to the idea that everything in the visible Universe emerged from a Big Bang fourteen billion years ago. But what caused the Bang? And was the Bang the beginning of time? Only a few decades ago, these questions were considered beyond the reach of science. However, unified theories of high energy physics have allowed us to build mathematical models of the Bang itself, and to test them both for logical completeness and consistency, and, most excitingly, with new observations. In the lecture, I will review two models: one in which the Universe began at the Bang, and the other in which the Bang was a violent event in a pre-existing Universe. The competition between these models lies at the heart of many deep questions about the Universe, and about our ultimate ability to understand it.

RECEPTION TO FOLLOW