CERN Colloquium

SPEAKER: Neil Turok (TheorETical Physics Institute (CA))

TITLE: **"Beyond the Big Bang: a new view of cosmology"**

DATE: Thu 19/07/2012 16:30

PLACE: Council Chamber

ABSTRACT

The inflationary universe scenario has dominated the field of cosmology for three decades. However, it has major limitations. What preceded inflation? Can one avoid fine tuning of initial conditions
and parameters? Can one conceive of a completion of the scenario which resolves the big bang singularity and explains the dark energy now coming to dominate? Are we forced to resort to anthropic explanations?

In this talk, I will develop an alternate picture, in which the big bang singularity is resolved and in which the value of the dark energy might be fixed by physical processes. The key is a resolution of the singularity. Using a combination of arguments,involving M theory and holography as well as analytic continuation in time within the low energy effective theory, I argue that there is a unique way to match cosmic evolution across the big bang singularity. The latter is no longer the beginning of time but is instead the gateway to an eternal, cyclical universe. If time permits, I shall describe new work connecting this picture to LHC's recent discoveries concerning the electroweak Higgs.

Organised by: Ignatios Antoniadis/PH-TH.....**Tea and coffee will be served at 16h00**