



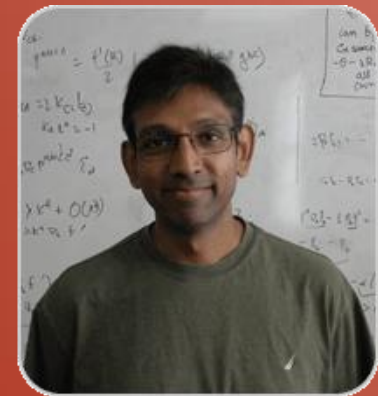
THEORY SEMINAR

"Metaphor for Dark Energy"

At the beginning of the twentieth century, there arose two distinct means of extending Newton's Law of Gravity and the Equivalence Principle to the relativistic regime. Of course one was General Relativity. The other was Nordstrom's theory of scalar gravity, improved further by Einstein and Fokker as a theory of curved spacetime. This theory ultimately failed observational tests of relativistic gravity, but it has come up in other guises in theoretical physics over the decades. I will describe this remarkable theory and update it into the era of quantum mechanics and string theory, and point out that it can provide a simpler "laboratory" for thinking through some tough puzzles of real gravity.

In particular I show that scalar gravity has a strikingly faithful version of the cosmological constant problem, satisfying the same no-go "theorems" of real gravity, and yet there is an elegant solution in terms of a subtle form of evolving "dark energy" that can be understood in standard quantum field theory.

Raman Sundrum,
University of Maryland



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