

p-adic cosmology to become quantum gravity

Abstract

Non-local field theories originating from p-adic string theory and from string field theory form an appealing approach to resolve long-standing fundamental questions of quantum field theory. As the most notable development, non-local gravity theories including theories with non-local matter provide a challenging opportunity to explain the early universe without introducing a cosmological singularity. Moreover, the theory meets all the prerequisites to be renormalizable and unitary. As such, it is a very promising candidate for the quantum gravity. Going further one can easily embed the inflation in the non-local gravity framework as well as realize a non-singular bounce and perhaps resolve the information paradox. In my talk I will try to touch these physical aspects as much as time permits.