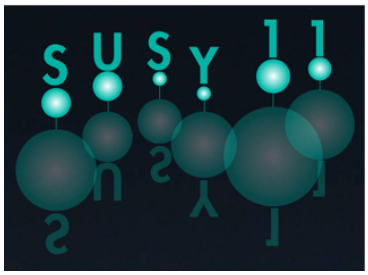

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Cosmology in p-brane systems

Wednesday, 31 August 2011 15:40 (20 minutes)

We present time-dependent solutions in the higher-dimensional gravity which are related to supergravity in the particular cases. Here, we consider p-branes with a cosmological constant and the intersections of two and more branes. The dynamical description of p-branes can be naturally obtained as the extension of static solutions. In the presence of a cosmological constant, we find accelerating solutions if the dilaton is not dynamical. In the case of intersecting branes, the field equations normally indicate that time-dependent solutions in supergravity can be found if only one harmonic function in the metric depends on time. However, if the special relation between dilaton couplings to antisymmetric tensor field strengths is satisfied, one can find a new class of solutions where all harmonic functions depend on time. We then apply our new solutions to study cosmology, with and without performing compactifications.

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