Time-Dependent Flux Backgrounds in Type IIB Supergravity

Ratul Mahanta*†[1] and Ahmed Kamal[2]

[1]University of Science and Technology of China [Hefei] (USTC) – Hefei, Anhui, China
[2]Masaryk University [Brno] = Masarykova univerzita [Brno] = Université Masaryk [Brno] (MU / MUNI) – Žerotínovo nám. 617/9 – 601 77 Brno – Czech Republic, Czech Republic

Abstract

In this talk, I will discuss the analytic constructions of time-dependent type IIB supergravity backgrounds in which the 4D metric evolves while the 6D internal Calabi-Yau manifold scales with time, keeping all relevant fluxes and, in most cases, a dynamical axiodilaton, moreover satisfying both 4D and 10D energy conditions. I will then discuss an extension of the Maldacena-Nuñez no-go analysis that incorporates ingredients from our constructions. Here we quantify, based on stress-energy contributions, the 6D scale factor, and the internal Ricci scalar, when a positive 4D Einstein-frame Ricci scalar may be achieved, thereby evading the no-go theorem. The talk will be based on arXiv:2512.19793 (hep-th).

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*Speaker
†Corresponding author: rmphys27@gmail.com