

On the Exotic String Landscape

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Non geometric string constructions can give us a window into interesting corners of the quantum gravity landscape and enlarge the boundaries of our current understanding. I will firstly be discussing such constructions in 8 supercharges where the usual prominent compactifications arise from Calabi-Yau threefolds. Such compactifications always come with a dilation field controlling the volume of the threefold. However, using asymmetric orbifold constructions we will find theories with no hypermultiplets in 4 or 5 dimensions and no neutral hypers in 6d. We argue that these theories can also be obtained by going to strong coupling/small volume regions of geometric constructions where a new Coulomb branch opens up and moving in this direction freezes the volume/string coupling constant. Interestingly we find that the Kodaira condition encountered in geometric limits of F-theory compactifications to 6 dimensions is violated in these corners of the landscape due to strong quantum corrections.

I will then move on to more exotic orbifold constructions using symmetries of the string lattice that are not automorphisms of the target torus known as quasicrystalline compactifications.

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Classification de Session: :