Broken and restored: a holographic constraint and non-abelian orbifolds for AdS3 vacua

Vincent Van Hemelryck*†[1]

[1]Uppsala Universitet – P.O. Box 524, SE-751 20 Uppsala, Sweden

Abstract

Whether string theory admits AdS vacua with scale separation, i.e. a large hierarchy between the cosmological constant and the Kaluza–Klein scale, remains a central open problem. A recent holographic proposal suggests that scale-separated solutions with integer spectra must satisfy a non-trivial constraint on cubic couplings, as verified in DGKT.I test this criterion for families of AdS3 vacua arising from type II compactifications on Z2xZ2xZ2 orbifolds of twisted tori with G2-structure. The constraint is violated in all these examples, but is restored when using non-abelian orbifolds containing the Z2xZ2xZ2 subgroup. Interestingly, the holographic constraint points to an obstruction when O-planes wrap cycles in distinct homology classes.

*Speaker

†Corresponding author: vincent.vanhemelryck@physics.uu.se