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The Holographic Swampland

Wednesday 16 December 2020 15:30 (30 minutes)

We investigate whether Swampland constraints on the low-energy dynamics of weakly coupled string vacua in AdS can be related to inconsistencies of their putative holographic duals or, more generally, recast in terms of CFT data. In the first part of the talk, we shall illustrate how various swampland consistency constraints are equivalent to a negativity condition on the sign of certain mixed anomalous dimensions. This condition is similar to well-established CFT positivity bounds arising from causality and unitarity, but not known to hold in general. Our analysis will include LVS, KKLT, perturbative and racetrack stabilisation, and we shall also point out an intriguing connection to the Distance Conjecture. In the second part, we show how a different, recently derived inequality on mixed anomalous dimensions maps to novel constraints on four-derivative interactions on AdS. As an application, we use this to constrain the interactions of scalars with a non standard kinetic term, finding in particular that the DBI action for multiple scalar fields is at the boundary of the allowed region.

Would you be interested in receiving feedback on your talk?

Yes

Will you be pre-recording your talk?

No

Length of talk

15-25 minutes

Are you happy for your talk to be recorded?

Yes

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