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String perturbation theory of Klebanov-Strassler throat

Friday 20 December 2024 11:45 (45 minutes)

In this talk, I will explain how to study string perturbation theory of the Klebanov-Strassler solution in the large radius approximation based on open-closed superstring field theory. Combining the large radius expansion and a double scaling limit, we find a perturbative background solution of open-closed superstring field theory that corresponds to the Klebanov-Strassler solution. To illustrate the utilities of this approach, we break supersymmetry of the background by placing a stack of anti-D3-branes at the tip of the throat. We then find a perturbative open string background solution to the third order in the large radius approximation, which agrees with the well-known supergravity analysis of Kachru-Pearson-Verlinde (KPV) on the stability of the anti- D3-brane supersymmetry breaking. The perturbative background solution to the open string field theory we found is expected to be dual to an NS5-brane probing the KS solution.

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