

Exact results for the giant graviton four-point correlator

Saturday 20 July 2024 12:00 (15 minutes)

I will review determinant operators in $N=4$ super Yang-Mills theory with gauge group $SU(N)$, which are half BPS dimension N operators, also known as giant gravitons. I will discuss our recent paper on the 4-point correlation function of two dimension 2 superconformal primary operators and two determinant operators, which is dual, by AdS/CFT, to two gravitons scattering off a D3-brane that moves along the geodesic in AdS. This has been studied in the weak 't Hooft coupling regime up to 3 loops in the planar limit. By integrating over the spacetime coordinates with a certain measure, we can use supersymmetric localisation to study the correlator at arbitrary 't Hooft coupling. We obtain closed formulas for the integrated correlator for arbitrary 't Hooft coupling in the planar limit and beyond. Finally, I will discuss how we can use $SL(2, \mathbb{Z})$ invariance to complete our results to include instanton contributions.

Alternate track

I read the instructions above

Yes

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