Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 8 Fevrier 2024, 10:00

Tobias Hansen

Durham

The AdS Virasoro-Shapiro amplitude

I will present a constructive method to compute the Virasoro-Shapiro amplitude on AdS5xS5, order by order in AdS curvature corrections. The k-th curvature correction takes the form of a genus zero world-sheet integral involving single- valued multiple polylogarithms of weight 3k. The coefficients in an ansatz in terms of these functions are fixed by Regge boundedness of the amplitude, which is imposed via a dispersion relation in the holographically dual CFT. We explicitly constructed the first two curvature corrections. Our final answer reproduces all CFT data available from integrability and all localisation results, to this order, and produces a wealth of new CFT data for planar N=4 SYM theory at strong coupling. Finally, the high energy limit of the AdS Virasoro-Shapiro amplitude is compared to a classical scattering computation in AdS and agreement is found.

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