Contribution ID: **1426** Type: **Parallel session talk**

Loops of loops in the amplituhedron

Saturday 20 July 2024 14:45 (15 minutes)

We study a novel geometric expansion for scattering amplitudes in planar $\mathcal{N} = 4$ super Yang-Mills theory in the context of the Amplituhedron which reproduces the all-loop integrand as a canonical differential form on the positive geometry. By considering the integrand in terms of negative rather than positive geometries, it has previously been shown that one gets a sum of terms that are accurate to all loop orders, and instead relies on a different expansion in the terms of a new type of tree and multi-cycle graphs. One can then calculate an all-cycle order result in the approximation where only tree graphs in the space of all loops are considered. Furthermore, using differential equation methods, it is possible to calculate and resum integrated expressions and obtain strong coupling results. In this work we extend the expansion to graphs with a single internal cycle, and introduce a powerful method for determining differential forms for higher number of cycles as well.

Alternate track

I read the instructions above

Yes

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Session Classification: Formal Theory

Track Classification: 10. Formal Theory