Contribution ID: 81

## Six-Loops in N=4 super-Yang-Mills Theory

Thursday 23 September 2021 09:35 (20 minutes)

We construct the complete (planar and non-planar) integrand for the six-loop four-point amplitude in maximal  $D \leq 10$  super-Yang-Mills. This construction employs new advances to help combat the proliferation of state-sums and loops in the evaluation of multi-loop D-dimensional unitarity cuts. Concretely, we introduce two graph-based approaches, applicable in a range of theories, to evaluating generalized unitarity cuts in D dimensions: 1) recursively from lower-loop cuts, or 2) directly from known higher-loop planar cuts. Neither method relies on explicit state sums or any sewing of tree-level amplitudes. The first method meshes particularly well with the Method of Maximal Cuts to allow direct construction of the complete six-loop integrand

## Do you wish to attend the workshop on-site?

yes

## Summary

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