Contribution ID: **1404**   Type: **Parallel session talk**

Two-Loop Five-Point Amplitudes in the Spinor Helicity Formalism

Saturday 20 July 2024 16:45 (15 minutes)

I present recent efforts to tame the algebraic complexity of two-loop five-point scattering amplitudes in the spinor helicity formalism. These amplitudes are required, for instance, to obtain next-to-next-to-leading order predictions for the production of three jets or of a massive vector boson with two jets at the Large Hadron Collider. I review the method of numerical generalized and the integrand decomposition technique employed to generate finite-field or p-adic samples of the amplitudes. I then focus on the study of the analytic properties of the rational coefficients and their reconstruction from said numerical samples. I show how to exploit correlations among codimension-one residues to simplify the calculation. I touch upon various interdisciplinary aspects, including elements of number theory, computational algebraic geometry, constraint programming, memoization, and GPU acceleration.

Alternate track

I read the instructions above

Yes

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Session Classification: Formal Theory

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