

Multi-Leg Amplitudes in QCD

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I review the recent advances in the computation of QCD scattering amplitudes at the high multiplicity frontier. Their computation is hindered by both algebraic and analytic complexity, making them one of the main bottlenecks to obtaining predictions at the next to-next-to-leading order in QCD for many interesting LHC processes. The last few years have seen dramatic progress in this direction, elevating massless two-loop five-particle amplitudes to the state of the art in the field. I discuss the main insights that underlie this advancement: a deepened understanding of the special functions appearing in the amplitudes, and the use of finite field arithmetic enhanced by ideas from algebraic geometry to bring under control the rational coefficients.

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