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Towards the complete one-loop two-gluon central emission vertex in QCD

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Recently there has been significant progress in understanding the Regge limit in massless scattering amplitudes. In particular, all the ingredients needed for the computation of the BFKL kernel at NNLO have been determined in QCD, apart from the two-gluon central emission vertex at one loop, which is known so far only in maximally supersymmetric Yang-Mills theory. We present the calculation of the next-to-multi-Regge-kinematic (NRMK) limit of the six-gluon amplitude in QCD, from which this vertex can be determined. Due to the complexity of the expressions for the next-to-maximally-helicity-violating (NMHV) amplitude and the high powers of spurious poles in the NMRK expansion parameter, we use p-adic evaluation to obtain numerical samples for the leading NMRK behaviour. We then employ analytic reconstruction techniques to recover analytic results in a minimal set of independent variables. In particular, allowed partial fraction depositions are identified through nested p-adic limits near codimension-two varieties.

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