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Special Functions for Five-Point One-Mass Scattering in QCD

Friday 15 December 2023 14:30 (30 minutes)

I will present the recent computation of a complete set of the two-loop five-point Feynman integrals with one external mass. Employing the method of canonical differential equations and the properties of Chen's iterated integrals, we construct a basis of special functions that greatly facilitates the calculation of scattering amplitudes, and is amenable for applications in NNLO QCD phenomenology. The abundance of dlog forms with algebraic arguments makes finding solutions through generalized multiple polylogarithms extremely challenging. To sidestep this issue, we devise a new method in which an analytic function basis can be established when no such solutions are known or exist.

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