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Analytical and numerical results for scattering amplitudes involving elliptic integrals

Thursday 9 October 2025 10:30 (30 minutes)

I discuss recent progress in the analytical computation of scattering amplitudes involving elliptic integrals. Thanks to recent developments in the study of elliptic Feynman integrals, it is possible to derive a canonical basis for the full system of master integrals associated with a given process. In particular, I present the application of a powerful method to the system of master integrals relevant to diphoton and dijet production with heavy-quark mass dependence, highlighting how obtaining solutions in terms of iterated integrals leads to significant simplifications at the amplitude level. Furthermore, I discuss how fast and efficient numerical evaluations in the physical region can be achieved by constructing series expansion representations of the full amplitude.

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