Resummation, Evolution, Factorization 2022



Contribution ID: 12

Type: not specified

Multiparton Scattering Amplitudes: The formalism of Fused-Webs

Tuesday 1 November 2022 16:40 (15 minutes)

The correlators of Wilson-line operators in non-abelian gauge theories are known to exponentiate, and their logarithms can be organised in terms of the collections of Feynman diagrams called Cwebs. The colour factors that appear in the logarithm correspond to completely connected diagrams and are determined by the web mixing matrices. In this talk we present several new concepts that we recently introduced: (a) Normal ordering of the diagrams of a Cweb, (b) Fused-Webs (c) Basis and Family of Cwebs. We use these ideas together with a Uniqueness theorem to arrive at an understanding of the diagonal blocks, and several null matrices that appear in the mixing matrices. We demonstrate using our formalism that, once the basis Cwebs present upto order α_s^n are determined, the number of exponentiated colour factors for several classes of Cwebs starting at order α_s^{n+1} can be predicted. We further provide complete results for the mixing matrices, to all orders in perturbation theory, for two special classes of Cwebs using our framework.

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Session Classification: Parralell Session B: TMD theory