Contribution ID: **29**   Type: **not specified**

Five-parton scattering in the high-energy limit

Wednesday, 11 September 2024 11:50 (25 minutes)

The availability of high-multiplicity multi-loop scattering amplitudes in QCD provides invaluable data for studying the theory under special kinematic configurations. Recent calculations of two-loop full-colour QCD amplitudes for the scattering of five partons have enabled us to explore their high-energy limit, known as Multi-Regge Kinematics (MRK). In this limit, a universal factorisation pattern is expected for the amplitude. However, starting at the next-to-next-to-leading logarithmic order (NNLL), the exchange of multiple reggeons (MR) disrupts this factorisation.

In this talk, I will first review the effective theory that accurately describes the high-energy limit and how it predicts the MR contributions. Once the latter are properly accounted for, the universal factorisation pattern is restored. This restoration allowed us to extract a fundamental ingredient for the factorisation at NNLL: the Lipatov vertex at two-loop order. I will also delve into various technical details of how this calculation was carried out.

Primary author: BUCCIONI, Federico (TUM)

Presenter: BUCCIONI, Federico (TUM)

Session Classification: Methods for amplitudes and integrals

Track Classification: Methods for amplitudes and integrals