

Amplitude Bootstrap of The Energy-Energy Correlation in QCD

Thursday, 27 October 2022 11:15 (25 minutes)

Energy-energy correlation (EEC) has been studied for almost 40 years, with its analytical calculation only being done quite recently using integration-by-parts (IBP) identities. We present a bootstrap strategy to calculate the EEC up to the next-to-leading order (NLO) correction by crafting an ansatz based on the colour structure of the QCD amplitudes and the Symbols of the master integrals relevant for the $e^+e^- \rightarrow e^+e^-g$ process, which we impose self-consistent constraints to reduce the ansatz's parameters. We expect that symmetry of $\sqrt{z} \rightarrow -\sqrt{z}$ argument, the end-point kinematics, and colour structure of the QCD master integrals can constrain the ansatz significantly. The results would be presented in terms of classical polylogarithms.

Presenter: MULYAWAN, Reynaldi Gilang (University of Indonesia)

Session Classification: QCD