

Canonical differential equations for loop integrals in four dimensions

Wednesday, 24 August 2022 09:20 (20 minutes)

In this talk, we introduce our work on a new type of canonical differential equation for heavy quark effective theory (HQET). This method aims at calculating the divergent part of Feynman integrals with only one region of divergence. For this special type Feynman integrals, we invent three ingredients 1) the “graded IBP operator”, 2) syzygy method to control the types of divergence, 3) the “initial” algorithm for 4D canonical differential equation. We show the power of our method by calculating an example of 3-loop HQET integral family, whose $1/\epsilon$ coefficients correspond to the angle-dependent cusp anomalous dimension.

Summary

Primary author: ROUROU, Ma (U)

Co-authors: HENN, Johannes; ZHANG, Yang; YAN, Kai

Presenter: ROUROU, Ma (U)

Session Classification: Plenary 戊