

The diagrammatic coaction

Saturday 30 April 2022 10:00 (30 minutes)

The diagrammatic coaction underpins the analytic structure of Feynman integrals, their cuts and the differential equations they admit. The coaction maps any diagram into a tensor product of its pinches and cuts. These correspond respectively to differential forms defining master integrands, and integration contours which place a subset of the propagators on shell. In a canonical basis these forms and contours are dual to each other. In this talk I review our present understanding of this algebraic structure and its manifestation for dimensionally-regularised Feynman integrals that are expandable to polylogarithms. Using one- and two-loop integral examples, I will explain the duality between forms and contours and correspondence between the local coaction acting on the Laurent coefficients in the dimensional regulator and the global coaction acting on generalised hypergeometric functions. Finally, I will explain some of the salient differences between the one- and two-loop cases.

Primary author: GARDI, Einan (The University of Edinburgh)

Presenter: GARDI, Einan (The University of Edinburgh)

Session Classification: Plenary 3