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Geometric Bookkeeping for ε -factorised Differential Equations

Wednesday 3 September 2025 12:00 (30 minutes)

In this talk we will present our new method to compute the ε-factorised differential equations for arbitrary Feynman integrals. The fresh strategy is based on two steps: in the first step, we study the twisted cohomology (and its filtrations) associated with a given integral family (on the maximal cut) and introduce a particular order relation in the Laporta algorithm, such that the resulting differential equation is a Laurent polynomial in ε. In the second step, we explain how systematically achieve an ε-factorised form by solving a set differential constraints. Furthermore, we will also comment on the possible benefits of the newly introduced ideas in the context of Feynman integral reduction.

Presenter: MAZLOUMI, Pouria