

Holonomic Techniques for Feynman Integrals



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Geometrizing Landau Analysis

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In this talk, we will revisit Landau analysis for Feynman Integrals and their singularity study from a new geometrical viewpoint. The first part of the talk is about the foundation of our method. Through interpreting Landau loci by pinching of Schubert solutions, we will be able to uplift Landau singularities of an integral to its symbol letters automatically, and see our previous conjectural method for symbology study called Schubert analysis naturally arises. In the second part, we apply this method for studying alphabets of scattering amplitudes in $N=4$ Super Yang-Mills theory. Following amplituhedron picture and previous Landau diagrams study, we produce 2-loop MHV and NMHV amplitudes alphabet for all multiplicities nicely. As a byproduct conclusion, we also talk about cluster algebraic structures underlying the amplitude alphabets.

Presenter: YANG, Qinglin (Max Planck Institute for Physics)