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# Evaluating Parametric Integrals in the Minkowski Regime without Contour Deformation

*Tuesday 16 April 2024 16:30 (30 minutes)*

In this talk, we present selected examples demonstrating an alternative approach to contour deformation for numerically computing loop integrals in the Minkowski regime. This method focuses on identifying singular hypersurfaces (varieties of the F polynomial) and mapping them to known points which can then be resolved by employing blow-ups/sector decomposition techniques, thereby avoiding the need for contour deformation. Using this technique, we achieve improved convergence properties without the need for contour deformation, which is known to significantly increase the complexity of the integrand by introducing, for example, derivatives of the F polynomial and complicated Jacobians. We highlight that while we have only tested the approach on selected 1-, 2- and 3-loop massless and 1-loop massive examples, it shows promise for practical applications, offering potential benefits over the traditional approach. Evaluation times are compared with existing contour deformation implementations to illustrate the performance of this alternative method.

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