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# High-Precision Analytic Continuation of Multivariable Hypergeometric Functions and Prospects for Feynman Integral Evaluation

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We present a high-precision numerical approach for evaluating multivariable hypergeometric functions with parameters linearly dependent on the dimensional regularization variable ε. The method is based on constructing analytic continuations via Frobenius-type generalized series solutions of associated Pfaffian systems. Implemented in the PrecisionLauricella package, this technique achieves high numerical accuracy while remaining computationally efficient and parallelizable. Importantly, the same algorithmic framework can be directly applied to a wide class of Feynman integrals that satisfy similar differential systems. This opens the path toward high-precision ε-expansion of Feynman integrals using the same continuation and reconstruction techniques developed for hypergeometric functions.

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