



Contribution ID: 158

Type: Poster

Epsilon-Expansion of Multivariable Hypergeometric Functions Appearing in Feynman Integral Calculus

Monday 12 December 2022 14:00 (1 hour)

We present a new methodology to perform the epsilon-expansion of hypergeometric functions with linear epsilon-dependent Pochhammer parameters in any number of variables. Our approach allows one to perform Taylor as well as Laurent series expansion of multivariable hypergeometric functions. Each of the coefficients of epsilon in the series expansion is expressed as a linear combination of multivariable hypergeometric functions with the same domain of convergence as that of the original hypergeometric function thereby providing a closed system of expressions. We present illustrative examples of hypergeometric functions in one, two, and three variables which are typical of Feynman integral calculus.

Session

Formal Theory

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Session Classification: Poster - 1