

From multi-loop Feynman diagrams to multiple polylogarithms

Radiative corrections to scattering amplitudes in quantum field theory require the calculation of Feynman integrals at multiple loops. The symmetries in quantum field theory have interesting mathematical implications for these multi-loop integrals. Often, their solution can be achieved by means of symbolic summation. We discuss the relevant mathematics and the underlying algorithms, which have applications in many areas of science.

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