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Extracting analytical amplitudes from numerical evaluations

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I will present a new method (arXiv:1904.04067) to generate analytic expressions for the integral coefficients of loop amplitudes using numerical evaluations only. We use high precision arithmetic to explore the singularity structure of the coefficients and decompose them into parts of manageable complexity. Each part is isolated by choosing an appropriate region of phase space, and reconstructed by solving a system of linear equations for the coefficients of a generic ansatz. To illustrate the usability of our method I will present sample computations for six-gluon one-loop integral coefficients and rational parts.

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