

# Basis decompositions of genus-one string integrals

*Thursday, 25 November 2021 11:30 (15 minutes)*

One-loop scattering amplitudes in string theories involve configuration-space integrals over genus-one surfaces with coefficients of Kronecker-Eisenstein series in the integrand. A conjectural basis of integrands under Fay identities and integration by parts was recently constructed out of chains of Kronecker-Eisenstein series. In this work, we decompose a variety of more general genus-one integrands into the conjectural chain basis. The explicit form of the expansion coefficients is worked out for infinite families of cases where the Kronecker-Eisenstein series form loops. Our results can be used to simplify multiparticle scattering amplitudes in supersymmetric, heterotic and bosonic string theories. The multitude of basis reductions in this work strongly validate the recently proposed chain basis.

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**Session Classification:** Short talks