Contribution ID: **244** Type: **not specified**

Special functions in field theory and string amplitudes

Thursday 29 September 2022 17:10 (20 minutes)

I will review the types of special functions appearing in Feynman integrals and string amplitudes, and show how multiple polylogarithms (MPLs) and elliptic multiple polylogarithms (eMPLs) appear in both contexts. Next, I will present new work on elliptic modular graph forms (eMGFs), which appear in closed genus-one string amplitudes. These functions can be loosely thought of as single-valued versions of eMPLs. I will illustrate how eMGFs can be studied in the language of iterated integrals, and that many computational techniques are similar from the land of Feynman integrals. Finally, I will compare analytic methods for the computation of Feynman integrals with numerical methods, and touch on some recent developments in the latter area.

Summary

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Session Classification: Parallel Session Strings

Track Classification: Strings & Mathematical Physics