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One-loop string scattering amplitudes at finite α'

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String theory provides us with UV-finite amplitudes of quantum gravity at every order in perturbation theory. However, explicit computations become quickly very complicated, to the point that their evaluation have been possible only in the low- and high- energy expansion. Essentially no results are known at intermediate values of α' .

In addition to that, the starting set up of this computations is Euclidean, and analytic continuation to the Lorentzian theory requires the implementation of the $i\epsilon$ prescription in string theory, which, while conceptually understood, it is in general technically difficult to perform.

In this talk, I will present a novel technique to evaluate one-loop amplitudes at finite α' , which also implements the $i\epsilon$ prescription in string theory. Such technology opens a window for computations that were previously inaccessible.

Based on <https://arxiv.org/abs/2501.13827> and other unpublished results.

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