



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Adventures in Perturbation Theory

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Zoom link shall be shared separately

I will address the question of: what are the mathematical/functional forms of predictions made using perturbative QFT? Beyond one loop, very little about this question has been known until quite recently, in part due to the appearance of non-polylogarithmic functions (often, if not always, involving Calabi-Yau geometries) which remain to be well understood. I will review the role and importance of such geometric structures, their complicating implications for the use of differential equations to "perform" loop integration, and describe how unitarity can be used construct (dramatically) improved bases of so-called "master integrals" in diverse applications.