Contribution ID: **17** Type: **not specified**

One-loop hexagon integral to higher orders in the dimensional regulator

Wednesday, February 15, 2023 2:30 PM (30 minutes)

The state–of–the–art in current two–loop QCD amplitude calculations is at five-particle scattering. In contrast, very little is known at present about two–loop six–particle scattering processes. Computing two–loop six–particle processes requires knowledge of the corresponding one–loop amplitudes to higher orders in the dimensional regulator. In this talk, I will show the analytic results for the one–loop hexagon integral to higher orders in dimensional regulator obtained via differential equations. I will discuss the function alphabet for general D–dimensional external states, function space up to weight
two and one–fold integral representation up to weight four for all integrals in the integral basis. Finally, I will discuss the difference between the conventional dimensional regularization and the four–dimensional helicity scheme at the level of the master integrals. With this, the one–loop integral basis is ready for two–loop amplitude applications.

Presenter: MATIJAŠIĆ, Antonela

Session Classification: Session IX