

# Phenomenology 2018 Symposium



Contribution ID: 445

Type: parallel talk

## The NNLO QCD soft function for 1-jettiness

*Tuesday 8 May 2018 14:15 (15 minutes)*

We calculate the soft function for the global event variable 1-jettiness at next-to-next-to-leading order (NNLO) in QCD. We focus specifically on the non-Abelian contribution, which, unlike the Abelian part, is not determined by the next-to leading order result. The calculation uses the known general forms for the emission of one and two soft partons and is performed using a sector-decomposition method that is spelled out in detail. Results are presented in the form of numerical fits to the 1-jettiness soft function for LHC kinematics (as a function of the angle between the incoming beams and the final-state jet) and for generic kinematics (as a function of three independent angles). These fits represent one of the needed ingredients for NNLO calculations that use the N-jettiness event variable to handle infrared singularities.

### Summary

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**Session Classification:** QCD & EW I