

Antenna subtraction at NNLO with identified hadrons

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Processes with identified hadrons require the introduction of fragmentation functions to describe the hadronisation of a quark or a gluon into the observed hadron particle. Such identified particles in the final state make the treatment of infrared divergences more subtle, because of additional collinear divergences to be handled. We extend the antenna subtraction method to include hadron fragmentation processes up to next-to-next-to-leading order (NNLO) in QCD in e^+e^+ collisions. To this end, we introduce new double-real and real-virtual fragmentation antenna functions in the final-final kinematics, with associated phase space mappings. We present results for the antenna functions, for the master integrals required to integrate them over the relevant phase space and finally for the integrated antennae themselves. Our results are cross-checked against the known NNLO coefficient functions for identified hadron production in e^+e^+ annihilation.

Primary author: STAGNITTO, Giovanni

Co-author: GEHRMANN, Thomas (University of Zurich)

Presenter: STAGNITTO, Giovanni

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