



Contribution ID: 9

Type: **not specified**

## Gauge invariance of radiative jet functions

*Monday, 27 March 2023 17:00 (20 minutes)*

In subleading powers of SCET, the Lagrangian contains couplings between soft quarks and hard-collinear quarks. Matrix elements of the hard-collinear part of these couplings are radiative jet functions. Although the radiative jet functions are constructed to contain hard-collinear modes, we find that, in order to render the radiative jet functions gauge invariant, it is necessary, in general, to include in the radiative jet functions certain contributions that contain a soft-quark propagator. In gauges other than the Feynman gauge, the soft-quark propagator is canceled by “gauge terms” in the gluon propagator, leaving a purely hard-collinear contribution.

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**Session Classification:** Session 4