

# DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



Contribution ID: 289

Type: **Parallel talk**

## Hadronization dynamics from the spectral representation of the gauge invariant quark propagator

*Wednesday 29 March 2023 10:00 (20 minutes)*

Using the spectral representation of the quark propagator we study the Dirac decomposition of the gauge invariant quark propagator, whose imaginary part describes the hadronization of a quark as this interacts with the vacuum.

In light-like axial gauge, we obtain a new sum rule for the spectral function associated to the gauge fixing vector. We then demonstrate the formal gauge invariance of the so-called jet mass, that can be expressed in any gauge as the first moment of the chiral-odd quark spectral function. We also present a gauge-dependent formula that connects the second moment of the chiral-even quark spectral function to invariant mass generation and final state rescattering in the hadronization of a quark.

We finally discuss how the jet mass contributes to and can be measured in inclusive DIS and electron-positron collisions.

### Submitted on behalf of a Collaboration?

No

### Participate in poster competition?

No

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