



Contribution ID: 119

Type: **not specified**

## The origins of the di-jet asymmetry

To fully harness the potential of jets as probes of the properties of QGP it is essential that the sensitivity of each specific jet observable to both properties of in-medium parton branching and medium properties is clearly understood. In this talk we use the di-jet asymmetry—the measure of the momentum imbalance in a di-jet system—together with the analogous observable in photon-jet events to spell out a generic sensitivity determination procedure. We find that, contrary to naive expectations, the di-jet asymmetry is not driven by differences in path-length of the two jets in the di-jet system, but rather by fluctuations of both energy loss and vacuum-like properties of the in-medium parton shower. We discuss the applicability of the procedure to further, more detailed, observables and the consequences of our findings to the interpretation of jet quenching phenomena. The talk is based on published work (arXiv:1512.08107 [hep-ph]) and further work yet to be published.

### Summary

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### Presentation type

Oral

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**Session Classification:** Parallel Session IV: High pT Correlations (II)