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Microjet spectrum and intra-jet distributions in heavy-ion collisions

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Jets in the vacuum correspond to multi-parton configurations that form predominantly via a branching process sensitive to the soft and collinear divergences of QCD. In heavy-ion collisions, energy loss processes, stimulated via interactions with the medium, affect jet observables in a profound way. On the level of Feynman diagrams this can be traced back to the difference of medium modifications imprinted in resolved and unresolved, including virtual, emissions along the cascade that is taking place inside and outside of the medium. This leads to a novel, non-linear resummation of jet energy loss through the so-called collimator function. In this talk we present new results on the combined effects of small- R resummation and energy loss to compute the R -dependent jet spectrum (called microjet spectrum) in heavy-ion collisions. We extend this analysis to the intra-jet distribution of inclusive hadrons and discuss the non-trivial role of factorization in this context. Finally, we set up a systematic inclusion of small-angle, medium-induced radiation and discuss its role on these observables.

Collaboration (if applicable)

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

Authors: TYWONIUK, Konrad (University of Bergen (NO)); MEHTAR-TANI, Yacine (Brookhaven National Laboratory); PABLOS, Daniel (University of Bergen)

Presenter: TYWONIUK, Konrad (University of Bergen (NO))

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