Coherence effects in a QCD parton cascade

Tuesday 20 March 2018 16:30 (25 minutes)

We study the color coherence phenomenon starting from the original quark-antiquark antenna laboratory in the presence of a medium. Measurements of jet substructure shed light on the character of the jet interactions with the dense medium formed in the collisions, which can break the intrajet color coherence leading to interesting phenomena. Describing the decoherence of the $q\bar{q}$ pair through the survival probability, we extract some interesting interpretations in the large- N_c limit. We extrapolate previous analyzes of the antenna radiation to the case of two hard splittings inside the medium, and prove that this generalization keeps back the picture of jet quenching with effective emitters in the QCD parton cascade. With the purpose of considering a more realistic setting, we address a similar configuration in which a quark-gluon antenna with finite formation time propagates through the medium. We study the in-medium QCD branching, which is also important to understand the jet substructure in eA collisions. Finally, we discuss the role of color coherence in these configurations.

Author: VILA, Víctor (Universidade de Santiago de Compostela)

Co-authors: DOMINGUEZ, Fabio (Universidade de Santiago de Compostela); SALGADO LOPEZ, Carlos Albert (Universidade de Santiago de Compostela (ES))

Presenter: VILA, Víctor (Universidade de Santiago de Compostela)