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Collinear ccbar enhancement in medium

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We derive the characteristic behaviour of the splitting function of a gluon to ccbar inside of a jet and focus on the medium modification. In the Baier-Dokshitzer-Mueller-Peigné-Schiff and Zakharov formalism one determines the modifications of parton splittings in the hot QCD plasma that arise from medium-induced gluon radiation. We study the modification of the g->c-cbar splitting function in the kinematic range accessible at the LHC runs 3&4. In addition to the characteristic momentum broadening of the c-cbar pair, we find that interactions with the medium also enhance the rate of c-cbar production both with Monte-Carlo reweighting and JetMed simulations. We propose an experimental signature through the rate of jets containing two D0 mesons in heavy-ion over proton-proton collisions.

Category

Theory

Collaboration

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