Contribution ID: **26**   Type: **Poster**

Flavor, parton-mass, and path-length dependence of energy loss in heavy-ion collisions at the LHC

Tuesday 24 September 2024 18:10 (20 minutes)

We use the parametric approach to analyze jet suppression measured using the nuclear modification factor of inclusive jets, b-jets, and jets from gamma-jet events. With minimum model assumptions, we quantify the magnitude of the average energy loss, its pt-dependence, intial parton-mass dependence, and flavor dependence. Further, we quantify the impact of fluctuations in the energy loss and nuclear PDFs on the measured jet suppression. When employing the Glauber model to infer the information about the collision geometry, we quantify the path-length dependence of the average energy loss. Comparison between the magnitude of the energy loss in 2.76 TeV and 5.02 TeV Pb+Pb collisions along with Glauber modelling allows to perform a transparent exptrapolation of the magnitude of energy loss expected to be measured in upcomming Oxygen-Oxygen collisions. The work presented in this talk represents a new extension of modelling published in PLB 767 (2017) 10 and EPJC 76 (2016) 2, 50 and it should help shedding the light into basic properties of parton energy loss measured at the LHC.

Category

Theory

Collaboration

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Session Classification: Poster Session

Track Classification: 1. Jets modification and medium response