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New results on mass and flavor dependence of jet quenching with ATLAS

The suppression and enhancement of jets in heavy-ion collisions provides a powerful method to probe the dynamics of the hot, dense plasma formed in these collisions at the LHC. Jet quenching in heavy-ion collisions is expected to depend on the flavor of the fragmenting parton. For light partons, energy loss via gluon bremsstrahlung is expected to dominate, while in the case of heavy-quark-initiated-jets, collisional energy loss may play a more important role.

This energy loss mechanism can be studied by measuring differences in the production of b-tagged jets in pp and Pb+Pb collisions. Further understanding can be gained through a measurement of the modification to the jet mass distribution, which provides sensitivity to the color coherence of the jet object.

In this talk, we report new measurements of jet production as a function of the jet mass as well as b-tagged jets reconstructed from a jet-associated muon in pp and Pb+Pb at $\sqrt{s_{NN}} = 5.02$ TeV collision energy using the large statistics Pb+Pb data sample collected with ATLAS in 2018.

Collaboration (if applicable)

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Track

Jets and High Momentum Hadrons

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