Flavor dependence of jet quenching in heavy-ion collisions

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We investigate the flavor dependent jet quenching, by performing a systematic analysis of medium modifications of the inclusive jet, γ-jet, and b-jet in Pb+Pb collisions relative to those in pp at the LHC. Our results from MadGraph+PYTHIA and LBT well describe the experimental data of the inclusive jet, γ-jet and b-jet both in pp and AA collisions simultaneously. We then use a Bayesian data-driven method to extract systematically the flavor-dependent jet energy loss distributions from experimental data in a model-independent way, where the gluon, light quark and b-quark initialed energy loss distributions are well constrained for the first time. We find that the quark jet energy loss distribution shows weaker centrality and p_T dependence than the gluon initiated one. We demonstrate the relative contributions from the slope of initial spectra, color-charge and parton mass dependent jet energy attenuation to the γ/b-jet suppression in heavy-ion collisions.

Theory / experiment

Theory

Group or collaboration name

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