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Jet substructure and jet energy loss distributions

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Recent measurements of jet substructure provide insights into how the hard and soft parts of the jets are modified by jet-medium interaction. One can also learn the flavor dependence of jet quenching via comparisons between boson tagged jet and inclusive jet. In this study, with the Linear Boltzmann Transport (LBT) model, we investigate the jet shape, jet splitting function and groomed jet mass in single jet, photon-jet and heavy flavor jet events. Our study on jet shape function shows that the medium modifications for the core of quark jets and gluon jets are quite different and the broadening of jet profile at the edge of the jet cone is mainly carried by soft particles from medium recoil. The groomed jet study shows that jet induced medium response is responsible for the enhancement of large groomed mass tail. We further implement different scenarios of coherent and incoherent energy losses in LBT simulation and find that they have a significant impact on the pT dependence of the nuclear modification of jet splitting function.

Summary

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