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# Entropy production and its time evolution in High energy energy QCD

Working in the framework of the Color Glass Condensate effective theory of high energy QCD, we investigate the momentum space entanglement entropy of the soft gluons produced in high energy dilute-dense collisions.

Entropy in the final state of a high energy collision arises due to decoherence of eigenstates with different energies during the time evolution after the collisions with the target. We define it rigorously as the entanglement entropy of the produced system with the experimental apparatus and we compute the time dependent single event entropy in the limit of weak projectile field.

Further we compute the entropy for the ensemble of events defined by the McLerran-Venugopalan model for the projectile wave function.

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