

Quenching of light hadrons at RHIC in collisional energy loss scenario

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The nuclear suppression factor, $R_{AA}(p_T)$ for light hadrons has been calculated by taking into account the elastic energy loss with appropriate geometry of jet production and propagation within the system. The Fokker-Planck equation has been solved (initial momentum distribution for partons is taken from perturbative QCD calculations) to obtain the momentum distribution for the partons at any given instant. These distributions along with the fragmentation functions for light hadrons are used to obtain the hadronic spectra in heavy ion collisions at RHIC energies. The experimentally observed, $R_{AA}(p_T)$ at RHIC can be reproduced within the ambit of the present model with reasonable values of parameters, *e. g.* initial temperature, thermalization time and equation of state. It is observed that $R_{AA}(p_T)$ with collisional loss has a tendency to increase for higher p_T , indicating the importance of radiative loss in this domain. In light of these findings the theory of jet tomography is expected to change considerably.

References

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