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Azimuthal correlation of charm quark pair produced in heavy ion collision

It is known that heavy quarks are produced in pairs. There always exists a correlation in azimuthal angle in transverse momentum plane between such both the members in such pairs. The two quarks in a pair may lose different amount of energy while traveling through QGP and it is expected that the correlation of $Q\bar{Q}$ will be altered considerably. Also in a completely different picture collective flow velocity of the medium can change the correlation of the heavy quark if heavy quark is assumed to be thermalized. Here we present the effect of charm quark energy loss (based on Wang-Huang_Sarcevic Model) on its correlation. The flow feature is shown using a naive model based on Cuautle-Paic model.

Summary

The results for correlation are shown for different charm quark momentum regions and show a dependency on energy loss mechanisms and can be compared to the experimental data on charm quark azimuthal correlation if measured.

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